

Ideologies of computer scientists and technologists
volume 2

Camille Akmut

Description
a collection of primarily statistical and prosopographical works establishing sociological rules and regularities within computer science and technology.

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“Not just a HR trend”. Behind the curtains of
diversity : a statistical analysis of role distribution
and hiring practices at a technology company.

Camille Akmut

Abstract

A look at professional roles distributions, and hiring practices at a representative start-up / technology company. Based on the statistical analysis of a database with 1700 individual information.

1 Introduction

1.1 Origin and context of the dataset

In 2017, SoundCloud laid off almost half of its employees. These workers organized and put together a (virtual) (or electronic) bulletin board where those affected published their information for potential prospective employers¹. A news publication at the time reported that “40 percent of its staff (... 173 people)”² had been fired.

1.2 Significance and method

These data offer a – to our knowledge – never-before made available insight into the world of technology companies, and specifically start-ups (ex, and current), from the point of view of their hiring practices. And, beyond, they offer, when analyzed, a general structure of the (corporate) technology world.

Going forward, we follow the classic steps of quantitative work that consists in : I. (description of the) data, II. (laying bare of the choices involved in) categorization, and III. statistics and IV. analysis, where critic and generalization play a big role.

2 Data

9 general categories (materialized as columns). One category has 5 sub-divisions. This makes 13, in total. Containing 130 entries (for as many individuals, materialized as rows). Or, close to 1700 individual information.

3 Categorization

The hardest work by far in this undertaking was creating coherent and consistent categories – we open up here our choices to scrutiny.

This is not uncommon for such type of work, but, in this case, the case of technology companies, the task was particularly difficult, for reasons we explain and that should be immanent below.

We signify native designations, in a manner akin to that of anthropologists, with the combined use of quotes and italics, to distinguish them from our own categories (where we may use quotes, to identify them as such, which is to say as constructs, but never together or in combination with italics).

It should be kept in mind that the following are self-descriptions, not (official) categories selected from (pre-defined) forms, which makes them all the richer.

¹Had they had a union, or some similar workers’ organization, they would have been able to organize in other, much more effective ways. (Rather than to go from one, questionable, company to the next.)

²Lockett 2017.

3.1 Gender

Gender was not provided, and so we used first names as principal proxy.³ This is an imperfect proxy (e.g. Alexis or Hadley). We used social media accounts to make sure the final categorization was correct. This enabled a coverage of 100% of the population⁴.

3.2 Roles

We have subsumed the various roles declared – many of them eclectic, sometimes having to deal with what can only be described as creative titles – under traditional nomenclatures.

In presenting these various roles, here, we move along an approximate axis of most technical to least technical (from “engineering” to “human resources” through “project/product management”).

3.2.1 (Software) Engineering

E.g. “*Backend Engineer*”, “*Software Engineer*”, “*iOS Engineer*”, “*Android Engineer*”. This category presented relatively the least difficulties.

3.2.2 Data science

We distinguished data science positions from (software) engineering. E.g. “*Data Engineer*”, “*Data Scientist*”, “*Data Analyst*”⁵.

But, these could be both further subsumed under “technical positions” (although some, and some important, information would be lost, as these professions tend to be more populated by women, we believe, and expect, than strictly engineering positions (in particular data analysts as opposed to data scientists)).

3.2.3 IT (Hardware)

E.g. “*IT Support ...*”, “*IT Technician*”. With the same remark as above, but with even more caution considering the divides between software and hardware already laid out elsewhere i.e. many software engineers conceive of themselves, and their profession has been constructed, in opposition to those, considered less(er), of “IT” (Information Technology).

³This was sometimes made hard by the fact that some of the respondents confused the two categories of first and last names.

⁴Many of them cultivated extensive online presences (LinkedIn (over 95% of the studied population), Twitter, Kaggle, etc.).

⁵All of these categories cover varied realities, and backgrounds (in particular data analysts have often backgrounds that are most distant from classical software engineering), are subject to much debate, and many liberties can be taken in their attribution – as will become even clearer with the rest of this population’s choices or indications – but data science is the closest to software engineering in our view, and they may eventually be subsumed together under “technical positions” (their practices are similar).

3.2.4 UX/UI

Other categories were not lacking in what appeared sometimes to be fantasy titles or (bordering on) grandiloquent embellishments or exaggerations : “*Brand Designer*” (“*Content Art Director*”), “*Senior Product Designer*”, “*Head of Design*”, “*Product designer*”, “*Audience/Market Research Manager*”, “*Audience Research Lead*”, and finally “*Creative Services Manager*”⁶ etc. etc.. These we placed under the general category of “UX/UI” (User Experience/Interface)⁷.

3.2.5 Product, Project, Content Management

Finally, we placed the – even more colorful, inventive – titles of “*UX Writer / Content Strategist*”, “*Senior Content Manager, Digital Music Specialist*”, “*Content Operations Intern*” or “*Technical Product Manager, Data Platform*”, or “*Project Manager Audience Research*” (elsewhere “*Product Manager, Creator Experience*”), “*VP Creator Product*” (elsewhere “*Senior Director of Product*”), “*Content Experience Manager / Community Manager*”, “*Senior Technical Account Manager*”⁸, and finally “*Intern, Learning & Development*”⁹ and “*Business Administration Specialist*”¹⁰, or otherwise “*Editor*” under a general category of “Product, Project, Content Management”.

3.2.6 Client relations

We finally created a category of “Client relations” to subsume the majority of the rest of the population : “*Label Relations*”, “*Director Business Development & Content Partnerships*”, “*Head of International Sales / Brand Partnerships*”, and “*Copyright Operations Specialist*” or “*Director of Eng Creators & Rightsholders*”, “*Senior Manager New Markets*”, “*Global communications manager*”, “*Sr. Manager, Strategy & Business Development*”, “*Director of Community Operations*”, “*Content Relations Manager*”¹¹...

We also placed “*Community Support Specialist*”, “*Senior Community Support Manager*” or “*Partner Support Lead ...*” under “Client Relations”, having first created a separate category of “Support”. We also placed varied marketing roles (previous “Marketing”) into this category.

⁶Only attributable under a correct category through cross-reference. Through nominal title alone we were inclined, and had first put it under “Client relations”.

⁷Coherent with their current positions, also cross-referenced.

⁸Also only attributable to a correct category through cross-reference with the internal category of “Expertise (5 keywords)”, where this member of the population had given “*Project ... management*” as first expertise.

⁹Cross-reference.

¹⁰Cross-referenced this time internally through the additional (native) category “Expertise (5 keywords)”.

¹¹First placed under “Product, Project, Content Management”, but a cross-reference with “Expertise (5 keywords)” enabled a more accurate placement (although these two categories have much overlap in places).

3.2.7 Human Resources

For instance “*Workplace Specialist*”, “*People Team Operations*”, “*Technical Recruiting Partner*”, “*Employer Branding Partner*”, “*Internal Communications Manager*”, “*Director, Recruitment & Employer Branding*”, “*Operations Manager*” (not to be confused with IT operations¹²) – are subsumed under the general category of human resources. Where doubts subsisted, we also relied on social media accounts to determine the current position.

3.2.8 Accounting

-. (Few members.)

3.2.9 Legal

E.g. “*Policy Manager*”.

3.2.10 Further notes

If we had to give a special qualifier, we do this in parenthesis : “Engineering (Management)” or “Product, Project, Content Management (Intern)” where we saw relevant to add this information. Engineering management positions for instance can subsume or cover a variety of realities, from past engineers turned managers to non-engineers (PM’s¹³) turned engineering managers¹⁴.

These various liberties taken with titles can be explained by the fact that many of the members of this population – particularly involved in the more creative-leaning professions offered by or of the technology world, or otherwise product or project management – are still attached to identities such as that of artists, or musicians, or writers, or otherwise “DJ’s” or professional “guitarists”, which they were, or continue to try to be, while also maintaining lucrative corporate careers, or simply trying to pay their bills like (most of) everyone else.

4 Statistics

4.1 Distribution of roles according to categories

Category	n	% of total
<i>Engineering</i>	33	25%
<i>Data science</i>	19	14%

¹²This also we were able to determine through cross-references with social media profiles.

¹³PM is the native designation used by this population to mean project managers (and sometimes perhaps product managers, all of these identities, and their real uses, being somewhat nebulous).

¹⁴One member of this population self-described as “Agile Facilitator/ Engineering Manager” for instance.

<i>IT</i>	2	1%
<i>UX/UI</i>	12	9%
<i>Project management ...</i>	20	15%
<i>Client relations</i>	29	22%
<i>Human Resources</i>	12	9%
<i>Legal</i>	2	1%
<i>Accounting</i>	1	0.07%

Table 1: Distribution of SoundCloud employees according to roles (categories).
n = 130 (100%)

4.2 Distribution of roles based on even broader categories

Category	n (%)
Technical roles	54 (41%)
— <i>Engineering</i>	33
— <i>Data science</i>	19
— <i>IT</i>	2
Design	12 (9%)
— <i>UX/UI</i>	12
Project management and Client relations	49 (37%)
— <i>Project management ...</i>	20
— <i>Client relations</i>	29
Human Resources, Legal, Accounting, etc.	15 (11%)
— <i>Human Resources</i>	12
— <i>Legal</i>	2
— <i>Accounting</i>	1

Table 2: Distribution of SoundCloud employees based on even broader categories. n = 130 (100%)

At first sight, there is nothing unusual about the representation of our population, and it may be considered to be representative : with the bulk of personnel employed in 1. technical roles 2. project/product/content management followed by human resources.

This is representative of many job distributions at similar companies, and to convince oneself of that, one may look at any of them, but we provide here one example for the convenience of the reader.

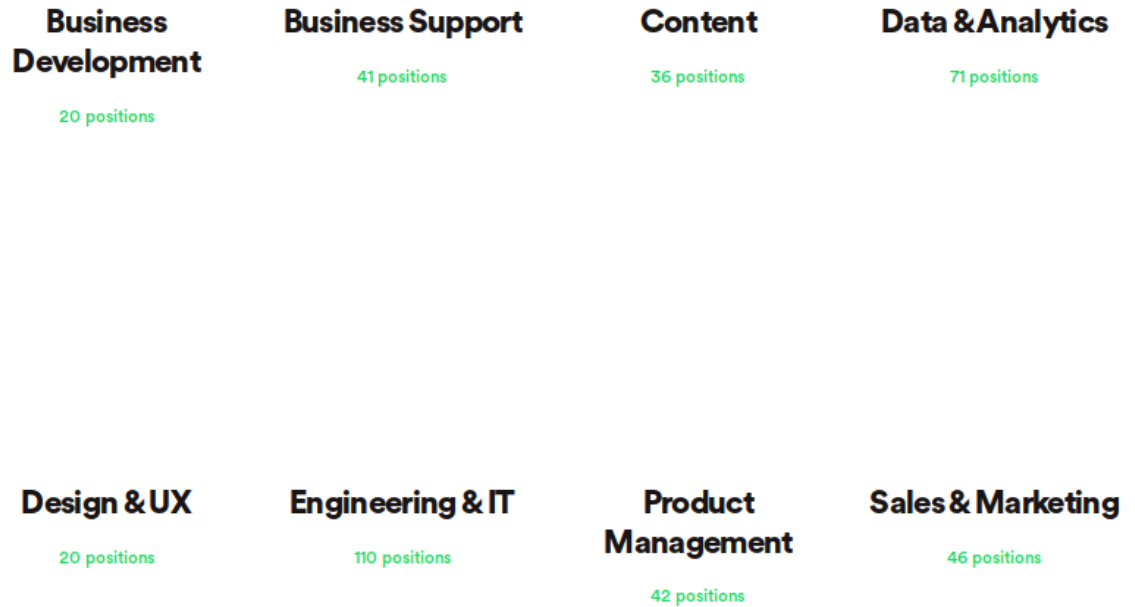


Figure 1: Jobs advertised at Spotify at the time of writing.

Job advertisements of course are only a proxy, one may argue they only represent the current needs, which may be fluctuating, but this we present as first reference¹⁵.

With “Engineering and IT” constituting the biggest category.

4.3 Gender-differentiated roles distributions

We come to the most interesting part of this analysis.

Which roles in the technology sector have the most men? Which ones the most women? And, how is a – self-conceived if not in actuality – progressive company – here SoundCloud – able to achieve their purported goals of diversity? We look at these, and other questions, here.

We do not limit ourselves to the wishes of these companies – so when they publish reports, most of them self-published, or whose integrity when published by third parties can be doubted, or when they include diversity pages on their websites – and neither their promises “to do better”, of which we have heard many pious ones during recent court and committee hearings, in recent times, but their actual practices. This is one of the great advantages of statistics (it is hard to be angry at numbers, though they can be manipulated).

¹⁵A much better reference is constituted by “Team”, “Staff” – they have many names – pages at these various companies, when they are available.

4.4 Overall gender distribution

Gender	n (%)
m	77 (59%)
f	53 (40%)

Table 3: Overall gender distribution of SoundCloud employees. n = 130 (100%)

Generally, statistics presented by these companies are what one may call “global”, or total, statistics – like we do here. Men make up 60% of SoundCloud employees as can be determined by our population, while women make up 40% of the rest.

Their reports will then conclude that – based on the unsaid fact of an about equal distribution of men and women in demographics – efforts remain to be done.

They rarely show specific statistics that differentiate between genders among specific roles, or do so in awkward, for the reader, but pleasant, for the company, manner.

We turn to these questions now. How many female engineers? How many male engineers? How many women employed in administration? Etc.

4.5 Gender distributions by role : technical vs. non-technical (the great divide)

Category	Men	Women	n (%)
<i>Engineering</i>	26 (78%)	7 (21%)	33 (100%)
<i>Data science</i>	14 (73%)	5 (26%)	19 (100%)
<i>IT</i>	1 (50%)	1 (50%)	2 (100%)
<i>UX/UI</i>	6 (50%)	6 (50%)	12 (100%)
<i>Project management ...</i>	9 (45%)	11 (55%)	20 (100%)
<i>Client relations</i>	15 (51%)	14 (48%)	29 (100%)
<i>Human Resources</i>	6 (50%)	6 (50%)	12 (100%)
<i>Legal</i>	0 (0%)	2 (100%)	2 (100%)
<i>Accounting</i>	0 (0%)	1 (100%)	1 (100%)

Table 4: Gender distribution of SoundCloud employees according to specific roles. n = 130 (100%)

At SoundCloud, women make up only 20% of software engineers, while men largely dominate this area (80%). This is compared with 40% versus 60% for the overall population.

Among the 7 women in engineering, 1 is an intern (there were no male

interns, in this area, or any other in fact¹⁶) and 1 is an engineering manager with “project management” listed among their expertise skills.

Data science represents an area that is slightly more populated by women, as per our assumptions and our general knowledge of the field. This may be interpreted as this area being slightly less in demand or competitive or prestigious, which does correspond to some native classifications at least¹⁷.

In IT, also congruent with our beginning assumptions, and otherwise ethnographic observations, women are found even more often than in the two previous – technical – areas of software engineering and data science. The sub-sample population however is very small.

Also congruent with our observations and impressions, the area of UX/UI is a largely “feminine” one, with – and in the particular sense – of their being about the same number of women and men, if not more women than men, involved in this area.

The rest remains also, so : an equal distribution, if not preponderance of women in project management and client relations and human resources.

If we were to overestimate the meanings of these numbers, and to express their un-saids, we might be lead to believe that, at this company, though not unlike any other of its sector, “women are good as secretaries, but not programmers”.

But, no such thing can be said here.

Category	Men	Women	n (%)
<i>Engineering</i>	26 (78%)	7 (21%)	33 (100%)
<i>Non-Engineering</i>	51 (52%)	46 (47%)	97 (100%)

Table 5: Gender distribution of SoundCloud employees according to engineering vs. non-engineering. n = 130 (100%)

Category	Men	Women	n (%)
<i>Technical</i>	41 (75%)	13 (24%)	54 (100%)
— <i>Engineering</i>			
— <i>Data science</i>			
— <i>IT</i>			
<i>Non-technical</i>	36 (47%)	40 (52%)	76 (100%)
— <i>UX/UI</i>			
— <i>Project management ...</i>			
— <i>Client relations</i>			
— <i>Human Resources</i>			
— <i>Legal</i>			
— <i>Accounting</i>			

¹⁶We come back to this fact later.

¹⁷E.g. various results to a (non-restrictive) search query such as “data science is not software engineering”.

Table 6: Gender distribution of SoundCloud employees according to technical vs. non-technical roles. $n = 130$ (100%)

4.6 Gender distributions of interns at SoundCloud : interns are women

We can go further with these analyses, and we do so here thanks to the availability of information such as “manager” or “intern” roles.

Gender	Role
f	Client relations (Intern)
f	Engineering (Intern)
f	Product, Project, Content Management (Intern)
f	Product, Project, Content Management (Intern)

Table 7: Gender distribution of SoundCloud interns. $n = 130$ (100%)

At SoundCloud, it may almost be said that “interns are women, and women are interns” (in mind, if not reflected in practices, at least).

5 Conclusion

Technology companies, with the (often false) revolutionary airs that their executives give themselves and give us, with their many perks, that some consider awesome, and other tragi-comical, have accustomed us to many things. They have promised even more.

Certain companies have a reputation – self-given, self-conceived, sometimes earned – for progressive politics. No matter what, we choose to prefer here numbers over all things.

Tomorrow, they may promise to solve world poverty thanks to AI, or to find a solution for tech-displayed San-Franciscans by providing them with the necessary technological education... (So they may in turn displace their fellow neighbors to even further fringes of the city, and on.) But, today, we simply look at their practices.

In this study, based on a complete population of 130 SoundCloud employees, having been laid off and posted their information online, we looked at their various characteristics and established objectively what diversity meant : diversity, in these companies, is found at most at a global level.

This is to say that when taking the total of employees and measuring gender-based statistics, one may find that about half – or close enough – are equally distributed between men and women employees. But, when looking at engineering vs. non-engineering categories, one finds a very different reality : at SoundCloud, a progressive technology company if there is any, only 1 in 5 engineers is a women.

This is coherent with the rest of the technology sector.

Diversity, to them, should never come at the cost of business.

*

Epilogue : in which we learn nothing about nothing.

Many of the members of this population then went on to work for other start-ups of the Berlin area, or closely related companies : Spotify, Deezer, Zalando, N26, Reddit, Facebook... Others returned to SoundCloud.

For, “What is the robbing of a bank compared to the founding of a bank?”

Bibliography

Lockett, Dee. 2017. "SoundCloud Plans to Forge Ahead Independently, Laying Off Almost Half Its Staff." *Vulture*, 06/06. <http://www.vulture.com/2017/07/soundcloud-makes-major-layoffs-to-remain-independent.html>

Spotify Jobs. <https://www.spotifyjobs.com/>.

Diversity & Inclusion at SoundCloud

SoundCloud is a truly global company that has over 30 different nationalities, working together to bring the world the most open and authentic, people-powered music streaming service.

We believe that focussing on diversity and inclusion is a business imperative, not just a HR trend, and by having a diverse workforce our company and platform is enriched. Diverse teams who are innovative and creative tend to blend various ideas, styles and backgrounds, as different ways of working are proven to create better results. By breaking with homogeneity, we become more aware of our own potential biases and awareness is the starting point for personal growth.

<https://medium.com/@SoundCloud/diversity-inclusion-at-soundcloud-ce6b9403f48b>

Jan 11, 2017

Appendix : a minimal hacker's toolbox (101 intro to statistics)

Disclaimer : no machine learning needed, most of the statistics pertaining to the social characteristics of the technological world can be obtained with just a few basic / simple equations.

=COUNTIF(B2:B131,"* f *")

=SUM(C2:C10)

Standard Filter -> Condition = Value ...

Corporate influence and the academic computer
science discipline. [1: Business dealings, and
debates at Stanford CS]

Camille Akmur

June 21, 2022

abstract

Stanford's "regular" computer science faculty, in this study, are experimental
subjects of a sociological work focusing on the corporatization of their
profession and science.

All 60-some current "regular faculty" of computer science at Stanford were submitted to a sociological analysis in this work.

The Death of Archimedes depicts a soldier raising a sword with fatal intent while the mathematician polymath continues his work unshaken, undisturbed.

In computer science, the death of Archimedes never happens.

This is because, in that final moment, the scientist and their allegorical enemy come to some agreement instead. Gold against corrupt, tainted knowledge.

Street smart and MIT or Stanford educated, world traveled and seasoned in worldly affairs, as adroit in business dealings as in debates, only the sky is the limit with individuals as ambitious as the ones found here :

Their institution is closer to Disneyland, (a comparison found often in disillusioned descriptions by their best alumni), than any dreamed up and nostalgic Cambridge or Oxford of the early 20th c.. Their buildings are named "Gates", "Knight" and even "Nvidia" rather than Newton, their professors and administrators have no shame about paid-for chairs called "Sequoia Capital" or "Canon USA", leaving little doubt about exactly what kind of business, or "hustles" these brave new world academics entertain and regularly engage in. Day-light teachers, moonlight entrepreneurs.

The regular faculty of computer science at Stanford, unbeknownst to them, are less Archimedes than gangster rappers : just as their lyrics purport, from 50 Cent to Rick Ross, "*they stay hustlin'*".

Stanford's motto ('The wind of freedom blows') must of course be understood in a Libertarian sense : for the wind of free market ideology blows strong at Stanford, outdoing fatal cold winters and ideas of Chicago.

At that most peculiar institution, only surpassed perhaps by MIT in that regard, the future of the capitalistic university, and of education within capitalism can be observed with a 30 or 50 year advance delay, before its destructive effects reach - one should say, 'trickles down' to - other institutions.

Abbreviations found in this work :

G = Google
F = Facebook
MS = Microsoft
HP = Hewlett Packard
DEC = Digital Equipment Corporation
AMZ = Amazon
JANest = Jane Street
Pr. = Professor
fo. = founder
con. = consultant
f. = fellowship
sch. = scholarship
Mill. = Million(s), implied US Dollars
x/y = company acquired / acquiring company

(the convention was retained that corporations, when abbreviated, are capitalized)

	Sponsored chairs, positions	Corp. funding	Corp	Corporate employment	PhD
Sara Achour	[Assistant]		x	Qualcomm, HP	MIT
Maneesh Agrawala	Forest Baskett Professor (Sun)		x	MS	Stanford
Alex Aiken	Alcatel-Lucent Professor		x	IBM	Cornell
Nima Anari	[Assistant]	G award, MS fellowship	x	G, F, MS, JANEst	Berkeley
Clark Barrett	[Associate]		x	G, Intel, MS	Stanford
Gill Bejerano	[Assistant]	MS, Packard fellowship			Hebrew Univ.
Michael Bernstein	STMicroelectronics Faculty	G award, MS fellowship	x	F	MIT
Jeannette Bohg	[Assistant]				KTH
Dan Boneh	[Professor]	Packard fellowship	x	Voltage Sec./Cisco [founder]	Princeton
Adam Bouland	[Assistant]		x	QC Ware [‘advisor’]	MIT
Emma Brunskill	[Assistant]	G award, MS fellowship			MIT
Moses Charikar	Donald E. Knuth Professor	c. half Mill. from many	x	Google	Stanford
Ron Dror	[Associate]		x	D. E. Shaw	MIT
Zakir Durumeric	[Assistant]	G awards, fellowship	x	Censys [founder]	Michigan
Dawson Engler	[Associate]		x	Coverity [founder], DEC	MIT
Stefano Ermon	[Associate]	MS f., Bloomberg grant			Cornell
Kayvon Fatahalian	[Associate]	G, F, AMZ, Apple, ...*			Stanford
Ron Fedkiw	[Professor]	Packard f., Intel sch.			UCLA
Chelsea Finn	[Assistant]	MS f., Intel award	x	Google Brain	Berkeley
Mike Genesereth	[Professor]		x	CommerceNet [founder]	Harvard
Noah Goodman	[Associate]				Texas Austin
Carlos Guestrin	[Professor**]	IBM fellowship	x	Apple, Turi [founder]	Stanford
Leonidas Guibas	Paul Pigott Professor	G, AMZ, Apple, MS...***	x	DEC, Xerox	Stanford
Patrick Hanrahan	CANON USA Professor		x	Tableau [founder], Pixar	Wisconsin
Tatsu Hashimoto	[Assistant]		x	MS	MIT
John Hennessy	[Professor]		x	G, Silicon Graphics	Stony Brook
Mark Horowitz	Yahoo Founder’s Professor		x	Rambus Inc. [founder]	Stanford
Doug James	[Professor]		x	Pixar	British Columbia
Dan Jurafsky	Jackson Eli Reynolds Professor				Berkeley
Sachin Katti	[Associate]	Packard fellowship	x	Intel	MIT
Oussama Khatib	Weichai Professor				Sup’Aero
Fred Kjoelstad	[Assistant]	G award, Intel f.	x	Accenture, ARM	MIT
Christos Kozyrakis	[Professor]	G, IBM, MS			Berkeley
Anshul Kundaje	[Assistant]		x	IBM	Columbia
Monica Lam	[Professor]		x	Tensilica/Cadence, Moka5	Carnegie Mellon
James Landay	Rajaraman Harinarayan Pr. (AMZ)	c. 5 Mill. from dozens	x	Intel, MS	Carnegie Mellon
Jure Leskovec	[Associate]	MS fellowship			Carnegie Mellon
Philip Levis	[Associate]	MS f., Foundation Capital	x	Kumu Networks [founder]	Berkeley
Fei-Fei Li	Sequoia Capital Professor	G award, MS f., IBM etc.	x	Google [Vice President]	Caltech
Percy Liang	[Associate]	MS fellowship	x	G, MS	Berkeley
Karen Liu	[Associate]	G award			Washington
Tengyu Ma	[Assistant]	IBM fellowship	x	F (Meta AI), MS	Princeton
Chris Manning	Thomas M. Siebel Professor	IBM, Samsung, Toyota etc.	x	G	Stanford
David Mazieres	[Professor]		x	DEC, Bell Labs, many [fo.]	MIT
Nick McKeown	Kleiner Perkins, Mayfield, Sequoia Pr.	HP, Intel scholarships	x	HP, Intel, Nemo/Cisco [fo.]	Berkeley
John Mitchell	Mary and Gordon Crary Family Pr.				MIT
Subhasish Mitra	[Professor]	IBM, Intel awards	x	G, Intel, Cadence etc. [con.]	Stanford
Kunle Olukotun	Cadence Design Professor		x	Afara Websystems/Sun [fo.]	Michigan
John Ousterhout	L. Bosack and S. Lerner Pr. (Cisco)		x	Sun, Electric Cloud [fo.]	Carnegie Mellon
Chris Piech	[Assistant]				Stanford
Balaji Prabhakar	VMWare Founders Professor				UCLA
Chris Re	[Associate]	’Robert Noyce’ f. (Intel)	x	”investor”, Lattice/Apple	Washington
Omer Reingold	Rajeev Motwani Pr. (G, Sequoia)	Rothschild award	x	MS, Samsung	Weizmann Insti
Mendel Rosenblum	Cheriton Family Professor (G)		x	VMware [founder]	Berkeley
Aviad Rubinstein	[Assistant]				Berkeley
Dorsa Sadigh	[Assistant]	G, AMZ, JPMorgan award	x	MS	Berkeley
Mehran Sahami	James and Ellenor Chesebrough Pr.		x	G	Stanford
Aaron Sidford	[Assistant, Management and CS]				MIT
Li-Yang Tan	[Assistant]				Columbia
Caroline Trippel	[Assistant]	Nvidia f.	x	F	Princeton
Greg Valiant	[Associate]		x	MS	Berkeley
Jennifer Widom	Fletcher Jones Professor	c. 5 Mill. (Boeing + CIA)	x	IBM, Xerox	Cornell
Keith Winstein	]Assistant]	G, F awards	x	Ksplice/Oracle	MIT
Mary Wootters	[Assistant]	G award	x	IBM	Michigan
Jiajun Wu	[Assistant]	AMZ, Samsung awards	x	G	MIT
Daniel Yamins	[Assistant]				Harvard
Matei Zaharia	[Assistant]		x	Databricks [fo.]	Berkeley

1. Corporate influence

Corporate influence in academic computer science is unlike anything seen in most disciplines (English, History, Mathematics...), making it closer to uncertain new disciplines like 'Business', 'Marketing' or 'Journalism' (many whose 'professors' come from the private sector, with backgrounds distant from traditional academia and research).

The phenomenon described - of corporations' influence on computer science - puts a heavy dent in computer scientist's aspiration and claims to mimic mathematicians at an epistemological level as members of a pure science, a purely scientific discipline.

In their real lives, computer scientists spend as much time mingling with Google, Facebook or Microsoft as with calculus, vector algebra and number theory (depending on their sub-areas, graphics to cryptography); but in their heads, they imagine and fashion themselves the new Archimedes and Galilei of our age, completely dedicated to the pursuit of knowledge, free from all influence : kings, religions, new religions, new kings and queens - in the fictions that they build for themselves, they battle all of them culminating in a glorious victory ...

Computer scientists, opinionated on all matters from economics to sociology as they are, will now answer and protest : "But, PROVE to us that our papers were wrong! We took the money, but it had no influence." But, it is not an issue of right or wrong, it is a multi-leveled issue consisting of, at least the following dimensions :

- i. What areas -of computer science- where resources, time, and energy invested in? This question raises the other, more interesting one : Which areas could have been investigated, but were not, because they were not funded?
- ii. Among topics and themes researched : How were they approached, from what perspective? Likewise, which aspects of the topics studied were, hence left aside?
- iii. What social benefit, what contribution to wider society did the research undertaken represent or provide?
- iv. Whose interests are ultimately being served?

Further, it is likely that computer scientists having spent many years in the private technology sector (be it at Google, Facebook or trading company Jane Street) retain not only mental habits formed there (i.e. software products used, internal programming practices and guidelines, etc.) but also friends and co-workers and generally an influence network stemming from that corporate environment. Does this influence their teaching or grading or behavior in academia, or are these professors born anew - tabula rasa, so to speak - once entering or re-entering the Ivory tower? We prefer to make the more realistic hypothesis that their ties to the corporate world has an impact - the degree of which can be discussed and argued.

As an example, among the many activities of the, psychologist, Dr. Goodman one is given as " *AI Tutors to Help Prepare Students for the 21st Century Workforce*" [CV, grants section] – which does not sound much like science, and instead what work agencies are doing.

One professor seemingly had had enough, who writes : " *In 1994 I left Berkeley to fulfill a long-standing desire to build commercial software. From 1994–1998 I was a Distinguished Engineer at Sun Microsystems Laboratories. In 1998 I founded Scriptics Corporation to commercialize Tcl development tools, where I was CEO until 2000. In 2002 I founded Electric Cloud [etc. etc.] In 2008 I returned to academia in the Computer Science Department at Stanford.*" [Ousterhout web site]

Madame Trippel, a former employee of Facebook, meanwhile seems to be affected by some form of schizophrenia : her Stanford Engineering departmental profile goes : " *Trippel has been recently exploring the role of architecture in enabling privacy-preserving machine learning*". Hopefully her experience at Facebook, one of the largest enemies of privacy, will be a trampoline on her learning journey so that she can do better next time...

2. Corporate influence : sponsored positions

Positions at the Associate or Assistant level are rarely if ever found sponsored, presumably because it does not have the same benefit for the companies (visibility, impact, prestige, ...).

fig. Stanford CS regular faculty : professor levels and sponsored positions

Assistant	23
Associate	14*
Professors	30
Sponsored professorships	20
Sponsored positions	21

n,t=67

*incl. Bernstein

In total, 20 out of the 30 professors that are among regular computer science faculty at Stanford occupy sponsored chairs meaning two-thirds (66.7%). Sponsors include billionaires from the technology sector, tech companies, investment firms, ... (cases include Sun, Amazon, Google, Weichai, Sequoia Capital, etc.).

fig. Origins of named chairs of Stanford CS regular faculty

	<i>likely fortune origin, affiliation...</i>
"Cheriton Family"	David Cheriton, billionaire, Stanford CS prof., early Google investor etc.
Fletcher Jones	some rich guy who liked horses and funding computer science chairs incl. Knuth's and Widom's
Paul Pigott	early 20th c. car tycoon (Pacifica), Stanford man?

3. Corporate funding disguised : philanthropy

e.g.,

SAP is often found as Hasso Plattner "foundation", named after the founder rather than the company : a common whitewashing technique, (especially favored by offspring, wives and relatives wanting to put some distance between themselves and the original business, as well as the often little elegant world of commerce in general).

An alternative strategy consists in not naming the patriarch (and soon enough matriarch) founder of the company, instead calling the philanthropy e.g. "Cheriton Family" or "Noyce family". This is done for the same reasons, and is quite revealing : creating distance between the inheritors and the - it must be assumed - dirty hands, and dirty dealings of the Father-founder. Through these tactics whatever dark underbelly and unscrupulousness behind the company and fortune, a new untouched pristine reputation is created for the philanthropic organization led by wives, children, sisters, golden-spoon fed daughters with movie star and maybe even artistic(!) aspirations, failed sons, etc.

Hence, so called "Robert Noyce (family)" awards are Intel fortune derived. The cheery sounding "Biohub", with which many Stanford Faculty are associated (e.g. Leskovec) is another whitewashing campaign by Chan Zuckerberg, derived from Facebook's dirty business. Destruction here, "biohub" and "Chan Zuckerberg Initiative" elsewhere (where Madame Zuckerberg can play modern day Princess and entertain her self-delusions as white gloved good-doer with clean hands). Wu Tsai philanthropy (expressed in various institutes) also came up.

Prof. Dr. Landay's CV in particular pages 1 and 2 as well as 48 to 51 give an astounding insight into the many lives and roles of academic computer scientists today : bottom gutter hustlers, part captains of industry, part professors, part secretary, part businessmen and -women, ethical capitalists and visionaries and "disrupters" - and a bit of actual, independent research with whatever time and distracted energy and mental space left...

4. Academic groups, laboratories as free labor, networking and infrastructure for professor-led start-ups

Academic groups and labs as free labor and infrastructure for professor-led start-ups seems to be a rampant practice among computer scientists : students, which they are supposed to "advise", become workers, while the university is used as already paid for infrastructure (Internet, servers, rooms, etc.) – and it is largely unclear what benefit the university, especially public and publicly-funded even if partially, gets out of all of this. Professors on the other hand make potential multimillion deals with next to no initial investments – which, from our naive perspective, sounds like a capitalist’s dream come true.

It is a practice that is seldom talked about or made explicit, (for obvious legal, commercial and otherwise reasons), but glimpses of it can be had through the Professors’ various web presence : Christopher Re, exempli gratia, writes for instance: *"companies I advise or invest [are listed] in here, many of which involve former members of the lab."* hyper-linked to the following :

With the [Factory](#), I'm working to help build companies including [Arbo](#), [Artera](#), [Galileo](#), [Greenstone](#), [Modular AI](#), [Numbers Station](#), [Opaque](#), [Predibase](#), [Rivos](#), [SambaNova](#), [Snorkel](#), [Voltron Data](#), and [Vori](#). I am fortunate to participate as an advisor or investor in some amazing companies including [Actively](#), [Adept](#), [Agita Labs](#), [AI21](#), [Curie](#), [DataChat](#), [Datometry](#), [Evidently](#), [Exotanium](#), [Gantry](#), [MeasureMe](#), [Moonhub](#), [OtterTune](#), [Ponder](#), [Prosimo](#), [Ramp](#), [Thistle](#), and others. Along with some great partnerships on companies above, I advise [GV](#). I've been fortunate to participate in companies that have exited Lattice Data, Inductiv, [Pixie Labs](#) (now part of New Relic) and [Sentropy](#) (now part of Discord).

https://cs.stanford.edu/people/chrisre/startup_advising.php (Busy as he is, one hopes he still finds the time for research and fulfillment of the minimal ideals of, independent, not-profit oriented, science.)

Mehran Sahami, exempli gratia, long-time Google employee, is a man of fewer words instead preferring more elegant, and likely prudent phrasing : *"I also continue to maintain a foot in the start-up world by serving on advisory boards to various companies."* [Sahami web site]

5. Education

fig. Educational origins, i.e. PhD, of Stanford’s Computer Science regular faculty

MIT	14
Berkeley	12
Stanford	11
Carnegie Mellon (CMU)	4
Cornell	3
Michigan	3
Princeton	3
two each [8]	Columbia, Harvard, UCLA, Washington (Seattle)
one each [9]	British Columbia, Caltech, Hebrew University, KTH, Stony Brook, Sup’Aero, Texas Austin, Weizmann Institute, Wisconsin

n,t=67

fig. Educational origins, i.e. PhD, of Stanford’s Computer Science regular faculty : geographical distribution

North America	63 (94%)
— USA	62 (92%)
Europe	2
Israel	2

n,t=67

fig. Educational origins, i.e. PhD, of Stanford's Computer Science regular faculty : US private and public univ.

Private	40 (65%)
Public	22

n,t=62

Stanford's faculty have for alma mater institutions known for entertaining extremely close ties to corporations, starting with Stanford itself, MIT of course, Carneggie Mellon. All private institutions, with a large component of profit orientation. A minority, approx. a third of Stanford's regular CS faculty, have obtained a PhD from public institutions - among these many come from Berkeley, (30%), leaving the rest distributed across less high ranking public US colleges at a maximum rate of 3 each.

1 individual is from the Univ. of Michigan but, there, had door-opening advising (Halderman, himself a Princeton man). UCLA is linked to a computer science affiliated professor whose PhD is listed as "applied mathematics" [UCLA being a current world center for mathematics]. Texas Austin is linked, likewise, to a PhD in mathematics but from someone who identifies with psychology (as a discipline).

A pattern observed further is undergraduate at e.g. MIT or Harvard followed by Stanford or vice versa, (in order to claim both), as in the case of Horowitz or Hashimoto - or some variation involving other premium, prestige universities.

6. Misc. notes

Fred Kjoelstad and Fred Kjolstad appear twice, bringing down the number of regular faculty at time of writing to 67.

Sloan awards, (which depending on category can be around 100K USD), so numerous were ignored : we concentrated on funding closest or most relevant to computer science and technology). Okawa Foundation is another.

Absence of information in categories related to corporate funding or employment does not signify absence of activity or participation necessarily, it could mean the data was not available (as readily as in the case of other individuals).

A note that will only be of interest to researchers doing work on computer science from a sociological and/or historical perspective : a commonly overlooked source for biographical information is the list of publications - through which, indirectly, and with only a little extra work, data such as educational and professional affiliations can be derived.

Ref.

<https://cs.stanford.edu/directory/faculty>

- "Biz Break: Hewlett-Packard buys Cupertino's Voltage Security..." *The Mercury News*, Feb. 9 2015.
- Forbes.com Hanrahan profile ("Patrick Hanrahan cofounded data analytics company Tableau in 2003. Salesforce acquired Tableau in June 2019 in a \$15.7 billion")
- "Pixar Pioneers Win \$1 Million Turing Award", *NYT* March 18th 2020. [Catmull and Hanrahan]
- "Donald Knuth. Fletcher Jones Professor of Computer Science, Emeritus" <https://engineering.stanford.edu/people/donald-knuth>

NB. Generally, information were obtained either directly on Stanford's website or through it (via hyperlink) - unless otherwise indicated.

* "Our work has been supported by the National Science Foundation [ref. nr.] and by INTEL, NVIDIA, QUALCOMM, GOOGLE, ADOBE, FACEBOOK, ACTIVISION, APPLE, AMAZON (...)" [Stanford page Fatahalian]

** "His previous positions include the Amazon Professor of Machine Learning at the Computer Science & Engineering Department of the University of Washington, the Finmeccanica Associate Professor at Carnegie Mellon University, and the Senior Director of Machine Learning and AI at Apple" [Stanford page Guestrin]

*** "He has also been awarded grants or given gifts by several corporations, including Adobe, Agilent, Amazon, Apple, Autodesk, Google, HTC, Microsoft, Qualcomm, Toshiba, and Toyota." [CV of Guibas]

A list of individual references follows,

Sara Achour	https://www.linkedin.com/in/sara-achour-76ab099
Maneesh Agrawala	http://www.macfound.org/site/c.1kLXJ8MQKrH/b.5458001/k.92B8/Maneesh_Agrawala.htm
Alex Aiken	https://theory.stanford.edu/~aiken/
Nima Anari	https://nimaanari.com/static/nima-anari-cv-2ddc6f284b91027e2df76c4944b36f74.pdf [12 pp.]
Clark Barrett	https://theory.stanford.edu/~barrett/cv.pdf [22 pp.]
James Landay	https://www.landay.org/_files/ugd/e549d4_6b15f9b92510420dbe1571f425bb5b5d.pdf [cv-2021-04.pdf, 53 pp.]
Gill Bejerano	http://bejerano.stanford.edu/Bejerano.cv.pdf [11 pp.]
Michael Bernstein	https://hci.stanford.edu/msb/files/msb-cv.pdf [16 pp.]
Jeannette Bohg	https://web.stanford.edu/~bohgf/
Dan Boneh	packard.org/what-we-fund/science/packard-fellowships-for-science-and-engineering/fellowship-directory/boneh-da
Adam Boulund	https://theory.stanford.edu/~aboulund/CV.pdf [5 pp.]
Emma Brunskill	https://cs.stanford.edu/people/ebrun/brunskill_cv_June_2020.pdf [16 pp.]
Moses Charikar	https://cap.stanford.edu/profiles/viewCV?facultyId=70217&name=Moses_Charikar [16 pp.]
Ron Dror	https://cap.stanford.edu/profiles/viewCV?facultyId=52823&name=Ron_Dror [17 pp.]
Zakir Durumeric	https://zakird.com/dl/durumeric_cv.pdf [10 pp.]
Dawson Engler	https://web.stanford.edu/~engler/ ; https://pdos.csail.mit.edu/~engler/cv.ps [5 pp.]
Stefano Ermon	https://profiles.stanford.edu/stefano-ermon ; https://cs.stanford.edu/~ermon/#
Kayvon Fatahalian	https://graphics.stanford.edu/~kayvonf/
Chelsea Finn	https://ai.stanford.edu/~cbfinn/ ; https://ai.stanford.edu/~cbfinn/_files/cv_may_2022.pdf [18 pp.]
Ron Fedkiw	http://physbam.stanford.edu/~fedkiw/ ; https://med.stanford.edu/profiles/8064
Mike Genesereth	http://ginapp.stanford.edu/people/genesereth/genesereth.html
Noah Goodman	https://cocolab.stanford.edu/ndg-cv.pdf [25 pp.]
Carlos Guestrin	https://engineering.stanford.edu/people/carlos-guestrin ; https://ai.stanford.edu/~guestrin/publications.html#
Leonidas Guibas	https://cap.stanford.edu/profiles/viewCV?facultyId=8099&name=Leonidas_Guibas [5 pp.]
Patrick Hanrahan	http://www-graphics.stanford.edu/~hanrahan/ ; https://profiles.stanford.edu/patrick-hanrahan
Tatsu Hashimoto	https://thashim.github.io/index.html#resume
John L. Hennessy	https://hennessy.stanford.edu/biography/curriculum-vitae/
Mark Horowitz	https://profiles.stanford.edu/mark-horowitz
Doug James	https://engineering.stanford.edu/people/doug-james
Dan Jurafsky	https://web.stanford.edu/~jurafsky/cv.pdf [18 pp.]
Sachin Katti	https://stanford.edu/~skatti/ ; profiles.stanford.edu/sachin-katti ; linkedin.com/in/sachin-katti-72777943
Oussama Khatib	http://khatib.stanford.edu/ ; https://profiles.stanford.edu/oussama-khatib
Fred Kjoelstad	https://fredrikbk.com/kjolstad-cv.pdf [5 pp.]
Christos Kozyrakis	https://web.stanford.edu/~kozyraki/
Anshul Kundaje	https://sites.google.com/site/anshulkundaje/
Monica Lam	https://suif.stanford.edu/%7Elam/cv.htm
Jure Leskovec	https://cs.stanford.edu/people/jure/
Philip Levis	http://csl.stanford.edu/~pal/ ; profiles.stanford.edu/philip-levis ; linkedin.com/in/philip-levis-b2376036
Fei-Fei Li	profiles.stanford.edu/fei-fei-li ; cap.stanford.edu/profiles/viewCV?facultyId=15052&name=Fei-Fei_Li [23 pp.]
Percy Liang	profiles.stanford.edu/percy-liang ; cs.stanford.edu/~pliang/ ; microsoft.com/en-us/research/people/v-pelia/
Karen Liu	https://profiles.stanford.edu/c-karen-liu ; https://ai.googleblog.com/2017/02/google-research-awards-2016.html
Tengyu Ma	cs.princeton.edu/news/article/tengyu-ma-receives-ibm-fellowship-award ; https://www.facebook.com/tengyu.ma ; https://www.linkedin.com/in/tengyu-ma
Chris Manning	https://cap.stanford.edu/profiles/viewCV?facultyId=8117&name=Christopher_Manning [38 pp.]
David Mazieres	https://www.scs.stanford.edu/~dm/cv.pdf [10 pp.]
Nick McKeown	stanford.edu/~nickm/Nick%20McKeown%20CV%202017%20-%20Google%20Docs.pdf [17 pp.] ; intel.com/content/www/us/en/research/people/nick-mckeown.html
John Mitchell	https://profiles.stanford.edu/john-mitchell
Subhasish Mitra	https://web.stanford.edu/~subh/ ; web.stanford.edu/~subh/honors.htm ; linkedin.com/in/subhasish-mitra-38077b1
Kunle Olukotun	https://profiles.stanford.edu/kunle-olukotun ; http://www.udcnigeria.com/company
John Ousterhout	https://web.stanford.edu/~ouster/cgi-bin/home.php ; https://profiles.stanford.edu/john-ousterhout
Chris Piech	https://stanford.edu/~cpiech/bio/index.html
Balaji Prabhakar	https://profiles.stanford.edu/balaji-prabhakar
Chris Re	https://cs.stanford.edu/people/chrimre/ ; https://www.macfound.org/fellows/class-of-2015/christopher-re
Omer Reingold	https://omereingold.wordpress.com/about/bio/ ; https://omereingold.files.wordpress.com/2022/01/cv-1.pdf [13 pp.]
Mendel Rosenblum	https://profiles.stanford.edu/mendel-rosenblum
Aviad Rubinstein	https://cs.stanford.edu/~aviad/
Dorsa Sadigh	https://dorsa.fyi/cv.pdf [16 pp.]
Mehran Sahami	http://robotics.stanford.edu/users/sahami/bio.html
Aaron Sidford	https://web.stanford.edu/~sidford/
Li-Yang Tan	https://theory.stanford.edu/~liyang/
Caroline Trippel	https://cs.stanford.edu/people/trippel/ ; https://engineering.stanford.edu/people/caroline-trippel
Greg Valiant	https://theory.stanford.edu/~valiant/
Jennifer Widom	cs.stanford.edu/people/widom/WidomCV.html [17 pp.]
Keith Winstein	https://cs.stanford.edu/~keithw/www/Winstein-CV.pdf [8 pp.]
Mary Wootters	https://web.stanford.edu/~marykw/files/cv.pdf [9 pp.]
Jiajun Wu	https://jiajunwu.com/ ; https://profiles.stanford.edu/jiajun-wu
Daniel Yamins	https://neuroailab.stanford.edu/people.html
Matei Zaharia	https://cs.stanford.edu/~matei/#publications

Appendix

- James Landay, CV, pp. 1-2 and 48-51
- Jennifer Widom, CV [”November 2020”], pp. 1-2 and 5-6
- Moses Charikar, CV, pp. 1-3
- Chelsea Finn, CV, p. 1
- Hanrahan ”Canon USA” professor
- Hennessy various corporate activities
- Fei-Fei Li Stanford profile page

JAMES A. LANDAY

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@landay

RESEARCH INTERESTS

Human-Computer Interaction (HCI), Ubiquitous Computing, User Interface Design Tools, Automated Usability Evaluation, End-User Programming.

EDUCATION

- 12/1996 **Carnegie Mellon University**, Pittsburgh, PA
Ph.D. in Computer Science
Thesis: *Interactive Sketching for the Early Stages of User Interface Design*
Advisors: Brad Myers and James Morris
- 12/1993 **Carnegie Mellon University**, Pittsburgh, PA
M.S. in Computer Science
- 05/1990 **University of California**, Berkeley, CA
B.S. in Electrical Engineering/Computer Science with High Honors

EMPLOYMENT

- 10/2016-PRESENT **Stanford University**, Computer Science Department, Stanford, CA
08/2014-PRESENT *Anand Rajaraman and Venky Harinarayan Professor in the School of Engineering Professor*
Teach courses related to user interface design. Perform and advise research in the areas of human-computer interaction and ubiquitous computing.
- 08/2013-07/2014 **Cornell NYC Tech**, Information Science Department, New York, NY
Professor
Helped to start new university campus. Taught courses related to user interface design. Performed and advised research in the areas of human-computer interaction and ubiquitous computing. Created cross-NYC organization for HCI and Design researchers and practitioners.
- 09/2010-07/2013 **University of Washington**, Computer Science & Engineering, Seattle, WA
08/2003-08/2010 *Short-Dooley Professor Associate Professor*
Taught courses related to user interface design, development, and evaluation. Performed research in of human-computer interaction, user interface design tools, and ubiquitous computing. Founded and led DUB, cross-campus interdisciplinary HCI+DESIGN collaboration with 35 faculty members and over 100 students.
- 08/2009-12/2011 **Microsoft Research**, Beijing, China
Visiting Faculty Researcher
Helped build new human-computer interaction research group. Recruited and hired group manager and team members. Carried out research in activity-based computing. Helped develop broader HCI research community in Beijing and China.
- 02/2011-06/2011 **Tsinghua University**, Computer Science Department, Beijing, China
Visiting Professor
Developed and co-taught User Interface Technology course to Masters students.

- 09/2006-01/2010 **Intel Corporation**, Intel Labs Seattle, Seattle, WA
Strategic Consultant
- 08/2003-08/2006 **Laboratory Director**
 Managed leading ubiquitous computing research laboratory. Responsible for developing research direction as well as management of staff and \$6.5M annual budget. Led technology transfer to Intel. Lab dominated the field in research impact and number of publications at the top-two ubicomp conferences during my tenure.
- 07/2002-07/2003 **University of California**, EECS Department, Berkeley, CA
Associate Professor
- 01/1997-06/2002 **Assistant Professor**
 Taught courses related to user interface design, development, and evaluation. Performed research in the areas of human-computer interaction, user interface design tools, and ubiquitous computing.
- 02/1999-08/2003 **NetRaker Corp**, Sunnyvale, CA
CTO, Chief Scientist: Co-founded leading company delivering online usability and market research. Responsible for overseeing design of the key features in products as well as hiring staff and obtaining funding. Acquired by KeyNote Systems in 2004.
- Consultant**
- 01/1997-PRESENT Advise companies on user interface design and software implementation.
- | | |
|--|---|
| Baidu USA, Sunnyvale, CA | Klipp, Colussy, Jenks, DuBois, Denver, CO |
| Dawnlight, Palo Alto, CA | Microsoft Corporation, Redmond, WA |
| Intel Corporation, Seattle, WA | Pangea Systems, Oakland, CA |
| Fuji-Xerox Palo Alto Labs, Palo Alto, CA | Propel Software, Santa Clara, CA |
| Fish & Richardson, Redwood City, CA | SkyFlow, Berkeley, CA |
| Google, Mountain View, CA | WilmerHale LLP, Washington, DC |
| Hewlett Packard Inc., Palo Alto, CA | |
- 06/1992-08/1992 **Xerox Corporation**, Palo Alto Research Center, Palo Alto, CA
Research Intern: Investigated user interface problems encountered when running applications on large (5-foot diagonal) pen-based displays. Designed and built new interface components to solve these problems and an application incorporating them.
- 06/1991-08/1991 **Digital Equipment Corporation**, Paris Research Laboratory, France
Summer Research Intern: Designed and implemented Rockit, a software system that identifies graphical constraints in a scene and allows the user to quickly and easily apply the desired constraints. Led to three conference publications.
- 06/1990-08/1990 **Go Corporation**, Foster City, CA
Software Engineering Intern: Designed and implemented bug entry database for the company's pen-based computer. Design included user interface to network database, as well as extension of a commercial database to support additional features.
- 06/1989-08/1989 **Ardent Computer**, Sunnyvale, CA
Member of Technical Staff: Designed and developed ECAD library manager to maintain consistency among different libraries and projects. Programmed CAD utilities for logic designers. Ran test simulations for verification of ASIC designs.
- 06/1987-08/1987 **Software Publishing Corporation**, Mountain View, CA
Software Engineering Intern: Designed and implemented PFS: Professional File 2.0 window manager, facilitating custom application development. Created utility for designer to finalize details of UIs. Implemented Lotus 1-2-3 data import/export.
- 01/1988-08/1988

GOVERNMENT & UNIVERSITY RESEARCH GRANTS

- 2020 **Alfred P. Sloan Foundation**, \$1,000,000, 07/01/20-06/30/21
Genie: An Open Privacy-First Virtual Assistant, with PI Prof. Monica Lam and others
- 2020 **Stanford Center for Integrated Facility Engineering**, \$80,000, 10/01/20-09/30/21
Hybrid Physical-Digital Spaces: Transforming the Design, Operation, and Experience of Built Environments to Promote Health and Wellbeing, with co-lead-PI Sarah Billington, Civil & Environmental Engineering Department, Stanford
- 2020 **Hasso Plattner Forderstiftung, fGmbH**, \$100,000, 10/01/20-09/30/21
Designing Intelligent Systems with Situated Feedback Based on Dynamic Mental Models
- 2020 **Stanford RISE**, \$50,000, 08/15/20-08/14/21
Hybrid Physical-Digital Spaces: Transforming the Design, Operation, and Experience of Built Environments to Promote Health and Wellbeing, with co-lead-PI Sarah Billington, Civil & Environmental Engineering Department, Stanford
- 2019 **Hasso Plattner Forderstiftung, fGmbH**, \$109,000, 10/01/19-09/30/20
Artistic Vision: Providing Contextual Photography Guidance for Rapid In-Camera Iteration
- 2019 **National Science Foundation**, \$3,000,000, 04/01/19-03/31/23 (Landay: ~\$400,000)
CNS Core: Large: Autonomy and Privacy with Open Federated Virtual Assistants, with PI Prof. Monica Lam and others
- 2018 **National Science Foundation**, \$452,435, 10/01/18-09/30/23
Collaborative Research: Scaling the Early Research Scholars Program, with Dr. Cynthia Lee
- 2018 **Toyota Research Institute**, \$900,000, 09/01/18-08/31/20
An Engagement Learning Approach to Generating Massive Labeled Datasets for Training AI Systems, with co-lead-PIs Fei-Fei Li and Michael Bernstein
- 2018 **Stanford Catalyst for Collaborative Solutions**, \$925,926, 07/01/18-06/30/20 (Landay: ~\$250,000)
Hybrid Physical+Digital Spaces for Enhanced Sustainability and Wellbeing, with co-lead-PI Sarah Billington, Civil & Environmental Engineering Department, Stanford
- 2018 **Stanford Catalyst for Collaborative Solutions**, \$1,481,482, 07/01/18-06/30/20 (Landay: \$92,300)
Motivating Mobility and Health on a Global Scale, with PI Scott Delp, Bioengineering
- 2018 **Stanford Artificial Intelligence Lab**, \$46,296, 07/01/18-06/30/20 (Landay: \$0)
Learning Behavior Change Interventions at Scale, with PI Michael Bernstein
- 2018 **Hasso Plattner Forderstiftung, fGmbH**, \$125,000, 10/01/18-09/30/19
From Design Thinking to Computational Thinking: An Early Stage Design Tool for Supporting Child Programmers' Problem Definition and Ideation
- 2017 **Stanford Woods Institute for the Environment**, \$49,976, 09/01/17-06/30/19
Motivating Pro-Environmental Behavior Change Through Ambient Narratives
- 2017 **Stanford Center for Digital Health**, ~\$25,000, 05/01/17-04/31/18
Harnessing Mindset in Health Technology Narratives (110 Apple watches), with Prof. Alia Crum, Psychology Department, Stanford University
- 2017 **Hasso Plattner Forderstiftung, fGmbH**, \$137,000, 09/01/17-08/31/18
ParaPower: Evaluating Parallel Prototyping Tools and Practices for Novice Designers

- 2016 **Hasso Plattner Forderstiftung, fGmbH**, \$130,000, 09/01/16-08/31/17
Understanding, Capturing and Reusing Successful Design Practices
- 2016 **Toyota Research Institute**, \$1,800,000, 02/01/16-02/28/18 (Landay: \$627,904)
Human behaviors and interaction for in-car experiences, with Profs. Agrawala & Bernstein, Stanford University
- 2011 **National Science Foundation**, \$544,180, 09/01/11-08/31/14
Interaction Economics: Instruments that Measure Social-Computational Systems, with Professor Claus Pörtner, Seattle University
- 2009 **National Science Foundation**, \$160,879, 08/15/09-07/31/12
Collaborative Research: Mobilizing Information Technology Systems to Motivate Reduced Energy Consumption and Greenhouse Gas Emissions, collaboration with Professors Jennifer Mankoff and H. Scott Matthews at Carnegie Mellon University
- 2009 **National Science Foundation**, \$497,438, 08/01/09-07/30/12
TC:SMALL: Informing Users of their Privacy in Practice, co-PI with Professor David Wetherall
- 2008 **University of Washington Royalty Research Fund (RRF)**, \$38,000
Beyond speech recognition: Harnessing Power of Voice for Effective Control of Computer Interfaces, co-PI with Prof. Jacob O. Wobbrock
- 2008 **University of Washington Technology Gap Innovation Fund (TGIF)**, \$49,922
A Semi-Private Internet via Shared Knowledge Tests, co-PI with Prof. James Fogarty
- 2008 **NISH**, \$5,000
Award for VoiceDraw project with Susumu Harada and Jacob Wobbrock
- 2007 **National Science Foundation IIS-0742877**, \$142,281
SGER: End-user Sketching of Games and Simulations
- 2003 **National Science Foundation**, \$1,240,000, 10/01/03-09/30/08
ITR: The Vocal Joystick: Voice-based Assistive Technology for Individuals with Motor Impairments, co-PI with Professor Jeff Bilmes
- 2002 **National Science Foundation**, \$2,300,000, 09/15/02-08/31/08
ITR: Human-Centered Design of Context Aware Computing: Scalability, Usability, Privacy
- 2002 **UC MICRO Program**, \$45,000
Design and Simulation Tools for Context-Aware Computing
- 2000 **National Science Foundation**, \$499,269
Action Agenda: Electronic Problem Based Long Life Learning for the Campus of the Future, co-PI with Professor Anthony Joseph
- 2000 **National Science Foundation**, \$270,000
The Designers' Outpost: A Task-centered Tangible Interface for Web Site Info. Design
- 2000 **UC MICRO Program**, \$29,531
Multimodal Tools for Creating Informal Presentations and Specifying Animations
- 1999 **National Science Foundation CAREER Award**, \$300,000
Informal Tools for Multimodal User Interface Design
- 1999 **UC Berkeley Hellman Family Faculty Fund Award**, \$25,000
Computer-aided Drawing for the Visually Impaired
- 1999 **Center for Innovative Learning Technologies (CILT) Seed Grant**, \$14,950
Palms Together: Collaborative use of Multiple Baby-faced Displays

- 1998 **UC MICRO Program**, \$16,603
Informal Web page Design
- 1998 **UC Berkeley Junior Faculty Research Grant**, \$7,500
Informal User Interfaces for Classroom Teaching

INDUSTRIAL GIFTS

2021 **Toyota**, Unrestricted, \$10,000
 2020 **Digital Foundry**, Support for CS147 project fair, \$3,000
 2020 **Microsoft**, Support for CS147 project fair, \$9,500
 2020 **Toyota**, Unrestricted, \$10,000
 2019 **Adobe Systems**, Unrestricted, \$5,000
 2019 **SK Telecom**, Multimodal voice project support, \$69,000 (via SAIL)
 2019 **Toyota**, Unrestricted, \$10,000
 2017 **TAL Education Group**, Smart Primer project support, \$1,305,000 (over 3 years)
 2017 **Renault**, Unrestricted, \$150,000
 2017 **Baidu**, Unrestricted, \$100,000
 2015 **Adobe CTL**, Unrestricted. \$4,500
 2015 **Microsoft Research**, Unrestricted. \$15,000
 2012 **Microsoft Research**, World Lab Summer Institute 2012. \$40,000
 2012 **Google**, World Lab Summer Institute 2012. \$25,000
 2012 **Intel**, World Lab Summer Institute 2012. \$10,000
 2009 **Google**, Measuring Utility of Human-Computer Interactions. \$50,000
 2009 **Nokia Research**, Context-Aware Mobile Phones. \$5,000
 2009 **Google**, Context-Aware Mobile Phones: Design, Prototyping, & Evaluation. \$50,000
 2008 **Nokia Research**, Context Aware Mobile Phones. \$35,000
 2008 **Microsoft Research**, Unrestricted. \$15,000
 2008 **Microsoft Research**, Student travel to CHI 2008. \$6,000
 2007 **Yahoo**, Context-Aware Mobile Phones: Design, Prototyping, & Evaluation. \$25,000
 2007 **Microsoft Research**, Unrestricted. \$15,000
 2002 **Xerox PARC**, Unrestricted. \$15,000
 2001 **Hewlett-Packard**, Unrestricted. \$50,000
 2001 **Xerox PARC**, Unrestricted. \$15,000
 2000 **Fuji Xerox Palo Alto Laboratories**, Unrestricted. \$25,000
 2000 **Qualcomm**, Adding History & Collaboration Support to DENIM. \$50,000
 2000 **CubicScience**, Unrestricted. \$50,000
 2000 **Xerox PARC**. Unrestricted, \$15,000
 2000 **IBM**. Unrestricted, \$40,000
 2000 **MyTurn.com**. Unrestricted, \$20,000
 2000 **SRI**, Informal Tools for Multimodal User Interface Design. \$35,000
 1999 **Intel**, Infrastructure Grant for innovative use of laptops in the classroom. \$200,000
 1999 **Fuji Xerox Palo Alto Laboratories**, Unrestricted. \$15,000
 1998 **NEC**, Informal Web Page Design. \$30,000
 1998 **Fuji Xerox Palo Alto Laboratories**, Unrestricted. \$15,000
 1997 **Fuji Xerox Palo Alto Laboratories**, Unrestricted. \$15,000

VITA

Jennifer Widom

Current Position

Stanford University, Frederick Emmons Terman Dean of the School of Engineering

- Fletcher Jones Professor in Computer Science and Electrical Engineering, 2008-present
- School of Engineering Senior Associate Dean for Faculty and Academic Affairs, 2014-16
- Computer Science Department Chair, 2009-14
- Professor, 2004-08
- Associate Professor, 1996-04
- Assistant Professor, 1993-96

Areas of research: Scalable graph processing; Crowdsourcing and human-assisted computation; Data provenance; Managing uncertain data; Query processing on data streams; Combining databases and the Web; Database systems for semistructured data and XML; Data transformations and warehousing; Active databases

Areas of teaching: Working with Data - Tools & Techniques; Introduction to Databases; Database System Implementation

Education

- Ph.D. in Computer Science; Cornell University, 1987
 - M.S. in Computer Science; Cornell University, 1985
 - M.S. in Computer Science; Indiana University, 1983
 - B.S. in Music with minors in Mathematics and Computer Science; Indiana University Jacobs School of Music, 1982
-

Previous Positions

- Research Staff Member, Computer Science Department, IBM Almaden Research Center; 1988-93
 - Visiting Assistant Professor, Computer Science Department, Cornell University; 1987-88
 - Summer Research Intern, Xerox Palo Alto Research Center; 1984, 1985
-

Honors and Fellowships

- Member, American Academy of Arts & Sciences, class of 2009
 - Member, National Academy of Engineering, class of 2005
 - ACM Fellow, conferred 2005
 - Guggenheim Foundation Fellow, 2000-01
-

General Awards

- EPFL-WISH Foundation Erna Hamburger Prize, 2018
 - IEEE Technical Committee of Data Engineering (TCDE), Education Award, 2018
 - ACM-W Athena Lecturer Award, 2015
 - Indiana University School of Informatics and Computing, Career Achievement Award, 2015
 - ACM SIGMOD Edgar F. Codd Innovations Award, 2007
 - IBM Research Division Award for Extensible Database Technology, 1992
-

Paper Awards

- Best Paper Runner-Up Award, 25th International Conference on Scientific and Statistical Database Management,

2013 (for *GPS: A Graph Processing System*, with S. Salihoglu)

- "Test of Time" Paper Award, 2005 ACM SIGMOD International Conference on Management of Data (for *View Maintenance in a Warehousing Environment*, with Y. Zhuge, H. Garcia-Molina, and J. Hammer)
 - Best Paper Award, 12th International World Wide Web Conference, 2003 (for *Scaling Personalized Web Search*, with G. Jeh)
 - 10-Year Paper Award, 26th International Conference on Very Large Data Bases, 2000 (for *Deriving Production Rules for Constraint Maintenance*, with S. Ceri)
 - "Test of Time" Paper Award, 2000 ACM SIGMOD International Conference on Management of Data (for *Set-Oriented Production Rules in Relational Database Systems*, with S. Finkelstein)
 - Best Paper Award, 17th International Conference on Very Large Data Bases, 1991 (for *Deriving Production Rules for Incremental View Maintenance*, with S. Ceri)
-

Professional Service

Board of Trustees and Other Oversight Committees

- Singapore Ministry of Education Academic Research Council, 2022-24
- VLDB Endowment Board of Trustees, 1998-2003 (executive board 2000-03)

Selection Committee

- ACM SIGMOD Awards Committee, 2015-17
- IEEE John Von Neumann Medal selection committee, 2014-16
- Heidelberg Laureate Forum selection committee, 2013-15
- Microsoft Research Faculty Fellows selection panel, 2013
- National Academy of Engineering Computer Science peer committee; 2006, 2008-10

Advisory Board Member

- InsightsOne Inc., 2011-14
- Abrevity Inc., 2006-09
- Ingrian Networks Inc., 2004-08
- Celequest Inc., 2003-07
- Kaltix Inc., 2003
- Business Signatures Inc., 2002-06
- CrossGain Inc., 2000-01
- WhizBang! Labs Inc., 1999-2002
- Angara Inc., 1997-2001
- Brookhaven National Laboratory Protein Data Bank, 1997-99

Visiting Committee Member

- Massachusetts Institute of Technology, Electrical Engineering & Computer Science Department, 2022-24
- Harvard University, School of Engineering and Applied Sciences, 2019
- Cornell Tech, 2019
- Princeton University, Computer Science Department, 2015-19
- University of California Santa Barbara, Computer Science Department, 2013-15
- Duke University, Computer Science Department, 2010

Other Professional Boards and Committees

- National Academy of Engineering Nominating Committee, 2021-22
- National Science Foundation IIS Division Director search committee, 2014
- Computing Research Association (CRA) Committee on Best Practices for Hiring, Promotion, and Scholarship; 2013-15

Editor

- Proceedings of the VLDB Endowment; review board, 2008-09

Primary Research Grants

- Taming the Information Explosion. *Boeing Corporation*, 2011-2014, total funding approx. \$1,050,000. Co-Principal Investigator (with H. Garcia-Molina, J. Heer, and J. Leskovec).
- Peta-Scale Information Management on a Cloud. *KAUST Academic Excellence Alliance Collaborative Research Grant*, 2010-2012, total funding approx. \$700,000. Co-Principal Investigator (with H. Garcia-Molina).
- Data Engine for an Analyst's Workbench. *Intelligence Advanced Research Projects Activity (IARPA)*, 2010-2011, total funding approx. \$270,000. Co-Principal Investigator (with H. Garcia-Molina).
- Provenance-Supported Debugging in Data Pipelines. *Yahoo! Faculty Research and Engagement Award*, 2010-2011, total funding \$10,000. Principal Investigator.
- Better Information Integration through Uncertainty. *National Science Foundation*, 2009-2013, total funding approx. \$1,200,000. Principal Investigator.
- Data Integration through Deduplication, Uncertainty, and Lineage. *Microsoft Corporation Jim Gray seed grant*, 2008, total funding \$35,000. Principal Investigator.
- Uncertain Information Integration. *U.S. Office of Research and Development*, 2007, total funding approx. \$150,000. Principal Investigator.
- Next-Generation Issues in Data Stream Management Systems. *National Science Foundation*, 2006-2010, total funding approx. \$950,000. Principal Investigator.
- Information Management Research. *Hewlett-Packard Corporation*, 2006-2009, total funding approx. \$600,000. Principal Investigator.
- Intelligent Information Integration and Aggregation. *Boeing Corporation*, 2005-2010, total funding approx. \$1,040,000. Co-Principal Investigator (with H. Garcia-Molina).
- DataMotion - Dealing with Fast-Moving Data. *National Science Foundation Information Technology Research (ITR)*, 2003-2009, total funding approx. \$3,500,000. Co-Principal Investigator (with H. Garcia-Molina and R. Motwani).
- Management and Processing of Data Streams. *National Science Foundation*, 2001-2004, total funding approx. \$445,000. Principal Investigator.
- From the Web to the Global InfoBase. *National Science Foundation Information Technology Research (ITR)*, 2000-2003, total funding approx. \$3,250,000. Co-Principal Investigator (with H. Garcia-Molina, C. Manning, and J.D. Ullman).
- Managing Semistructured Data. *National Science Foundation*, 1998-2001, total funding approx. \$235,000. Principal Investigator.
- A Warehousing System for Information Integration and Change Management. *Department of the Air Force*, 1997-1999, total funding approx. \$500,000. Principal Investigator.
- Data Management for Wireless Networks. *National Science Foundation*, 1996-1998, total funding approx. \$360,000. Principal Investigator.
- Changes, Consistency and Configurations in Heterogeneous, Distributed Systems. *Defense Advanced Research Projects Agency (DARPA)*, 1995-1998, total funding approx. \$825,000. Principal Investigator.
- A Warehousing Approach to Data and Knowledge Integration. *CIA Office of Research and Development*, 1995-1998, total funding approx. \$1,000,000. Co-Principal Investigator (with H. Garcia-Molina and J.D. Ullman).
- Efficient Management of Active Databases. *Army Research Office*, 1995-1998, total funding approx. \$225,000. Co-Principal Investigator (with J.D. Ullman).

- Data Management for Wireless Networks. *Stanford Center for Telecommunications and Center for Integrated Systems*, 1995-1996, total funding approx. \$150,000. Principal Investigator.
 - An Integrated Information Management System. *Defense Advanced Research Projects Agency (DARPA)*, 1994-1997, total funding approx. \$2,000,000. Co-Principal Investigator (with H. Garcia-Molina and J.D. Ullman).
 - A Warehousing Approach to Data and Knowledge Integration. *Department of the Air Force*, 1994-1996, total funding approx. \$200,000. Principal Investigator.
-

Publications

Books

1. A First Course in Database Systems. Prentice Hall, Upper Saddle River, New Jersey, first edition 1997, second edition 2002, third edition 2008 (with J.D. Ullman). *Translations: Chinese, Hungarian, Italian, Korean, Polish, Spanish*
2. Database Systems - The Complete Book. Prentice Hall, Upper Saddle River, New Jersey, first edition 2002, second edition 2008 (with H. Garcia-Molina and J.D. Ullman). *Translations: Chinese, Polish, Russian*
3. Database System Implementation. Prentice Hall, Upper Saddle River, New Jersey, 2000 (with H. Garcia-Molina and J.D. Ullman). *Translations: Chinese*
4. Active Database Systems: Triggers and Rules for Advanced Database Processing. Morgan Kaufmann, San Francisco, California, 1996 (with S. Ceri).

Book Chapters

1. Trio: A System for Data, Uncertainty, and Lineage. In C. Aggarwal, editor, *Managing and Mining Uncertain Data*, Springer, 2009.
2. STREAM: The Stanford Data Stream Management System. In M. Garofalakis, J. Gehrke, and R. Rastogi, editors, *Data Stream Management: Processing High-Speed Data Streams*, Springer, 2008 (with A. Arasu, B. Babcock, S. Babu, J. Cieslewicz, M. Datar, K. Ito, R. Motwani, and U. Srivastava).
3. Rule Processing in Active Database Systems. In L. Delcambre and F. Petry, editors, *Advances in Databases and Artificial Intelligence*, JAI Press, 1995 (with E.N. Hanson).
4. Active Database Systems. In W. Kim, editor, *Modern Database Systems: The Object Model, Interoperability, and Beyond*, Addison-Wesley, Reading, Massachusetts, 1994 (with U. Dayal and E.N. Hanson).

Refereed Journal Articles

1. Understanding Workers, Developing Effective Tasks, and Enhancing Marketplace Dynamics: A Study of a Large Crowdsourcing Marketplace. *Proceedings of the VLDB Endowment*, 10(7):829-840, March 2017 (with A. Jain, A. Das Sarma, and A. Parameswaran).
2. Optimal Crowd-Powered Rating and Filtering Algorithms. *Proceedings of the VLDB Endowment*, 7(9):685-696, May 2014 (with A. Parameswaran, S. Boyd, H. Garcia-Molina, A. Gupta, and N. Polyzotis).
3. Optimizing Graph Algorithms on Pregel-like Systems. *Proceedings of the VLDB Endowment*, 7(7):577-588, March 2014 (with S. Salihoglu).
4. Query Optimization over Crowdsourced Data. *Proceedings of the VLDB Endowment*, 6(10):781-792, August 2013 (with H. Park).
5. Making Aggregation Work in Uncertain and Probabilistic Databases. *IEEE Transactions on Knowledge and Data Engineering*, 23(8):1261-1273, August 2011 (with R. Murthy and R. Ikeda).
6. Human-Assisted Graph Search: It's Okay to Ask Questions. *Proceedings of the VLDB Endowment*, 5(12):1990-1993, February 2011 (with A. Parameswaran, A. Das Sarma, H. Garcia-Molina, and N. Polyzotis).

Moses Charikar

Office: Gates Computer Science Bldg **Email:** moses@cs.stanford.edu
353 Jane Stanford Way **URL:** <https://profiles.stanford.edu/moses-charikar>
Stanford, CA 94305

RESEARCH INTERESTS

Efficient algorithmic techniques for processing, searching and indexing massive high-dimensional data sets; efficient algorithms for computational problems in high-dimensional statistics and optimization problems in machine learning; approximation algorithms for discrete optimization problems with provable guarantees; convex optimization approaches for non-convex combinatorial optimization problems; low-distortion embeddings of finite metric spaces.

EDUCATION

- 1995 - 2000** Stanford University, Stanford, CA.
Ph.D. Computer Science.
Advisor: Rajeev Motwani
- 1991 - 1995** Indian Institute of Technology (IIT), Bombay, India.
Bachelor of Technology, Computer Science and Engineering.

PROFESSIONAL EXPERIENCE

- Dec '17 onwards**
Donald E. Knuth Professor of Computer Science and Professor, by courtesy, of Mathematics, Stanford University.
- August '15 onwards**
Professor, Computer Science, Stanford University.
- July '11 - July '15**
Professor, Computer Science, Princeton University.
- July '07 - June '11**
Associate Professor, Computer Science, Princeton University.
- Sept '01 - June '07**
Assistant Professor, Computer Science, Princeton University.
- Sept '00 - Aug '01**
Research Scientist, Google Inc.

PROFESSIONAL SERVICE

- ACM-SIAM SODA steering committee (2010-2012), SIGACT Committee for the Advancement of Theoretical Computer Science (2011-2017), Workshops chair for STOC 2013, FOCS 2013, Scientific Advisory Board member, Simons Institute for the Theory of Computing (2015-2018), TheoryFest co-chair (2018), TheoryFest chair (2019).

- Program Committee member for APPROX (2001), FOCS (2001), SODA (2003), ESA (2003), FSTTCS (2003), STOC (2004), APPROX (2005), FOCS (2006), SODA (2009), ICS (2011), FOCS (2012), FOCS (2014), FOCS (2016), APPROX (2017), HALG (2018), COLT (2019), SODA (2020). Program Committee Chair for APPROX (2007), SODA (2010).
- Director, Center for Computational Intractability, 2012-14.
- Co-organizer of Aladdin workshops on “Integrated Logistics” at Princeton (Oct-Nov ’02) and CMU (March ’03), workshop on “Discrete Metric Spaces and their Applications” at Princeton (Aug ’03), Aladdin workshop on “Flexible Network Design” at Princeton (Nov ’05), Concentration week on “Metric Geometry and Geometric Embeddings of Discrete Metric Spaces” at Texas A&M (July ’06), Mini-course on “Additive Combinatorics” at Princeton (Aug ’07), “Women in Theory” workshop at Princeton (June ’08, June ’10, June ’12), workshop on “Geometry and Algorithms” at Princeton (Oct ’08), DIMACS Tutorial on Limits of Approximation Algorithms: PCPs and Unique Games (July ’09), Co-Chair of Organizing Committee for DIMACS Special Focus on Intractability (2008-2010), Co-organizer of Barriers in Computational Complexity II workshop at Princeton (Aug ’10), workshop on Approximation Algorithms: The Last Decade and the Next at Princeton (June ’11), Summer School in Theoretical Computer Science at Princeton for high school students (June-Aug ’11), STOC 2012 workshop on Recent results regarding the Unique Games Conjecture (May ’12), workshop on Provable Bounds in Machine Learning (Aug ’12), minicourse on Spectral Methods (June ’13), Rising Stars in EECS workshop (2017).

RESEARCH GRANTS

- Amazon Research Award for *Efficient Algorithms for High-Dimensional Statistics* \$80,000 (2019).
- Google Research Award for *New Estimators via Locality Sensitive Hashing* \$70,000 (2018).
- NSF CCF award 1617577 for *New Perspectives on Mathematical Programming Relaxations*, \$450,000 (July ’16 - June ’19).
- Simons Investigator award, \$1,320,000 (August ’14 - July ’24)
- NSF CCF award 1302518 for *Towards Provable Bounds for Machine Learning* (co-PI Sanjeev Arora), \$900,000 (Sep ’13 - Aug ’17).
- NSF CCF award 1218687 for *Approximation Techniques for Combinatorial Optimization*, \$400,000 (Aug ’12 - July ’16).
- Google Research Award for *Online Bipartite Matching* \$70,110 (2011).
- NSF CCF award 0916218 for *Mathematical Programming Methods in Approximation*, \$499,996 (Aug ’09 - July ’12).
- NSF Expeditions award 0832797 for *Understanding, Coping with, and Benefiting from Intractability* (co-PI’s Sanjeev Arora, Bernard Chazelle, Bob Tarjan, Boaz Barak, Avi Wigderson, Russell Impagliazzo, Eric Allender, Mike Saks, Mario Szegedy, Subhash Khot, Assaf Naor), approx \$10,000,000 (Aug ’08 - July ’13).

- Google Research Award for *Efficient Content Based Similarity Search* (co-PI Kai Li) \$110,000 (2006), \$120,000 (2007).
- Yahoo! Research Alliance Award for *Content-Based Based Similarity Search for Non-Text, Feature-Rich Datasets* (co-PI Kai Li) \$100,000 (2006-07).
- NSF MSPA-MCS award 0528414 for *Embeddings of Finite Metric Spaces - A Geometric Approach to Efficient Algorithms* (co-PI's Sanjeev Arora, Bill Johnson, Misha Gromov), \$289,998 (Sept '05 - Aug '08).
- NSF CSR-PDOS award 0509447 for *Content-Searchable Storage for Feature-Rich Data* (co-PI's Kai Li, Perry Cook, Olga Troyanskaya), \$290,464 (July '05 - June '06).
- NSF IIS award 0414072 for *Constructing an Enhanced version of Wordnet* (co-PI's Christiane Fellbaum, Daniel Osherson, Rob Schapire), \$106,000 (Sept '04 - Aug '05)
- NSF CAREER award 0237113 for *Approximation Algorithms: New directions and Techniques*, \$400,091 (July '03 - June '09).
- DOE Early Career Principal Investigator Award for *Algorithmic Techniques for Massive Data Sets*, \$256,817 (Sept '02 - Aug '05).
- NSF ITR award 0205594 for *New directions in Clustering and Learning* (co-PI's Sanjeev Arora, Amit Sahai and Yoram Singer), \$1,530,000 (July '02 - June '07).

AWARDS AND HONORS

- 10 year best paper award, VLDB 2017.
- Best paper award, 30th Annual Conference on Learning Theory (COLT), 2017.
- Distinguished Alumnus Award, IIT Bombay, 2016.
- Simons Investigator in Theoretical Computer Science, 2014.
- ACM Paris Kanellakis Theory and Practice Award, 2012.
- Howard B. Wentz Jr. junior faculty award, 2004.
- Best paper award, 44th IEEE Symposium on Foundations of Computing (FOCS), 2003.
- Alfred P. Sloan Fellowship, 2003.
- Best student paper award, 31st ACM Symposium on Theory of Computing (STOC), 1999.
- Invited speaker: 17th Annual Conference on Learning Theory (July 2004), 14th Annual Fall Workshop on Computational Geometry (Nov 2004), Statistics and Optimization of Clustering Workshop (July 2005), 11th International Conference on Artificial Intelligence and Statistics (March 2007), Rajeev Motwani Distinguished Lecture at Stanford (March 2011), 54th Annual IEEE Symposium on Foundations of Computer Science (October 2013), 35th IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (December 2015).

Chelsea Finn

353 Jane Stanford Way

Stanford, CA 94305

cbfinn@cs.stanford.edu

<http://ai.stanford.edu/~cbfinn>

Current Positions

Stanford University, Computer Science Department and Electrical Engineering Department, Assistant Professor 2019 – present

Google, Inc., Brain Team, Research Scientist 2019 – present

Education

University of California, Berkeley, PhD 2014 – 2018

Thesis: *"Learning to Learn with Gradients"*.

Department of Electrical Engineering and Computer Science

Massachusetts Institute of Technology, Bachelor of Science 2010 – 2014

Electrical Engineering and Computer Science

Honors and Awards

IEEE RAS Early Academic Career Award in Robotics and Automation 2022

Awarded to two early-career academics for major impact on robotics & automation

For pioneering contributions in deep robotic learning, and their application to vision-based robotic manipulation

ONR Young Investigator Award 2021

Awarded to 38 early-career faculty

Samsung AI Researcher of the Year 2020

Awarded to five early-career researchers in AI worldwide

CoRL Best Paper Award 2020

For the paper *"Learning Latent Representations to Influence Multi-Agent Interaction"*

Intel Rising Star Faculty Award 2020

Awarded to ten early-career professors worldwide

Microsoft Faculty Fellowship Award 2020

Awarded to five early-career professors in North America

ACM Doctoral Dissertation Award 2019

Awarded to the best doctoral dissertation in computer science and engineering, worldwide

MIT TR35 Innovator Award 2018

Awarded to 35 innovators under 35 worldwide

Rising Stars in EECS 2017

Awarded to 70 EECS graduate and postdoctoral women

C.V. Ramamoorthy Distinguished Research Award 2017

For outstanding contributions to a new research area in computer science and engineering

ICRA Best Cognitive Robotics Paper Finalist 2017

For the paper *"Deep Visual Foresight for Planning Robot Motion"*

Tong Leong Lim Pre-Doctoral Prize 2016

For achieving the highest distinction in the pre-doctoral examination

Fei-Fei Li

(Publish as L. Fei-Fei)
Sequoia Professor of Computer Science
Stanford University

353 Jane Stanford Way, | Stanford, CA 94305
+1-650-725-3860 | feifeili@cs.stanford.edu | svl.stanford.edu
(Last update: 2020.10)

EDUCATION

- | | |
|--|--|
| CALIFORNIA INSTITUTE OF TECHNOLOGY
<i>Doctor of Philosophy in Electrical Engineering (Ph.D)</i> <ul style="list-style-type: none">• Advisors: Pietro Perona (primary) and Christof Koch (secondary)• Dissertation: “Visual Recognition: Computational Models and Human Psychophysics” | Pasadena, CA, U.S.A.
2001 - 2005 |
| CALIFORNIA INSTITUTE OF TECHNOLOGY
<i>Master of Science in Electrical Engineering</i> <ul style="list-style-type: none">• Advisors: Pietro Perona (primary) and Christof Koch (secondary) | Pasadena, CA, U.S.A.
2001 - 2003 |
| PRINCETON UNIVERSITY
<i>Bachelor of Arts in Physics</i> <ul style="list-style-type: none">• Graduated with High Honors• Certificates (equivalent of Minor) in Applied & Computational Mathematics, and Engineering Physics | Princeton, NJ, U.S.A.
1995 - 1999 |

WORK EXPERIENCES - ACADEMIA

- | | |
|---|---|
| STANFORD UNIVERSITY
Sequoia Professor, Computer Science Department
Denning Co-Director, Stanford Human-Centered AI Institute (HAI)
Professor, Computer Science Department
Director, Stanford Artificial Intelligence Lab (SAIL)
Courtesy Professor, Psychology Department
Associate Professor, Computer Science Department
Assistant Professor, Computer Science Department | Stanford, CA, U.S.A.
2019.06 - Present
2018.10 - Present
2018.01 - 2019.06
2013 - 2018.10
2013 - Present
2012.08 - 2017.12
2009.06 - 2012.08 |
| PRINCETON UNIVERSITY
Assistant Professor, Computer Science Department
Associated Assistant Professor, Psychology Department | Princeton, NJ, U.S.A.
2007.01 - 2009.06
2007.01 - 2009.06 |
| UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN
Assistant Professor, Electrical and Computer Engineering Department
Associated Assistant Professor, Psychology Department | Urbana-Champaign, IL, U.S.A.
2005.08 - 2006.12
2005.08 - 2006.12 |

WORK EXPERIENCES -- NON-PROFIT & PUBLIC SERVICES (Selected)

See Additional Work Experiences for more

- | | |
|---|--|
| AI4ALL - Non-profit organization for AI education and diversity
Co-Founder & Chairperson of the Board | Oakland, U.S.A.
2017.03 - present |
|---|--|

- Co-Founder & Director of precursor program -- SAILORS (Stanford AI Lab Outreach Summer program) (2015 - 2017)

Committee on Science, Technology, and Law, National Academy of Science 2020.03 - present
Member

Commission of Future of Work by Statement of California Sacramento, CA, U.S.A.
Commissioner 2019.09 - present

Computer Vision Foundation (CVF) - *Non-profit organization for international Computer Vision research*
Member, Board of Directors 2019.06 - present

The AI International Scientific Board by French President's Office - *an international group of AI experts to advise on AI-related issues to the French President's office* France
Member 2019.06 - present

Global AI Council by World Economic Forum - *an international group of AI experts to discuss AI-related technical, ethical and governance issues* U.S.A./Switzerland
Member 2019.04 - present

Scientific Committee, Future Prize - *Non-government, Non-Profit organization to award basic science research breakthroughs in greater China region* China
Member 2017.06 - 2019.09

Scientific Advisory Board (Fachbeirat), Max Planck Institute of Informatics Saarbrücken, Germany
Member 2017 - 2020

External Advisory Committee, Center for Brains, Minds and Machines, MIT Cambridge, MA, USA
Member 2017 - 2019

WORK EXPERIENCES -- INDUSTRY (Selected)

See Additional Work Experiences for more

TWITTER INC. San Francisco, CA, U.S.A.
Member, Board of Directors 2020.05 - Present

ZEBRA-MEDICAL Israel
Advisor 2019.01 - present

GOOGLE INC. Mountain View, CA, U.S.A.
Chief Scientist of AI/ML, Vice President, Google Cloud AI 2017.01 - 2018.09

- As part of an academic sabbatical leave from Stanford
- Co-founder of Cloud AI business unit
- Overall responsibility of product engineering, product management, basic science research and thought leadership
- Grow the Cloud AI team, business, and partnership
- Chief architect of major Google Cloud AI products such as AutoML Vision, NLP, Translation
- Business leader responsible for acquisition of Kaggle.com
- Business leader responsible for establishing Google AI's China Center in Beijing

ANDREESON & HOROWITZ INC. 2016.05 - 2017.01
Professor in Residence

MICROSOFT RESEARCH CENTER CAMBRIDGE Cambridge, UK

HONORS & DISTINCTIONS

- 2020 Member, National Academy of Medicine (NAM)
- 2020 Member, National Academy of Engineering (NAE)
- 2020 Member, Council on Foreign Relations (CFR)
- 2019 Technical Leadership Abie Award, AnitaB.org (“most prestigious award and celebrates a woman who led or developed a product, process, or innovation that made a notable impact on business or society.”)
- 2019 IEEE PAMI-TC Longuet-Higgins Prize (“recognizes papers published at CVPR ten years ago that have stood the test of time.”)
- 2019 Further Award, National Geographic (“recognizes a leader whose work is uniquely innovative, timely, and impactful—someone who has boldly pushed the boundaries of his or her field, and who serves as an outstanding ambassador for that breakthrough work.”)
- 2019 Best Paper Award, International Conference on Robotics and Automation (ICRA)
- 2018 Fellow, Association for Computing Machinery (ACM)
- 2018 One of “the World’s 50 Top Women in Tech”, Forbes Magazine
- 2017 WITI@UC Athena Award for Academic Leadership, University of California
- 2017 One of Seven Women in Technology honorees, Elle Magazine
- 2016 J.K. Aggarwal Prize, International Association for Pattern Recognition (IAPR)
- 2016 One of the 40 “The great immigrants,” Carnegie Foundation
- 2016 IEEE PAMI Mark Everingham Prize
- 2016 Pioneer in AI Research Award, NVidia
- 2015 One of the Leading Global Thinkers of 2015, Foreign Policy
- 2014 IBM Faculty Fellowship Award
- 2012 W.M. Keck Foundation Faculty Scholar
- 2012 Yahoo! Labs Faculty Research Engagement Program (FREP) Award, Yahoo!
- 2012/11 1st Place in PASCAL VOC Action Classification Challenge (internationally recognized computer vision competition)
- 2011 Alfred P. Sloan Fellowship (highly prestigious fellowship awarded to “best scholars in [the current] generation”)
- 2010 Best Paper Honorable Mention, IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- 2010 Google Research Award
- 2009 Stanford Terman Fellowship
- 2009 NSF CAREER Award
- 2008 Google Research Award
- 2007 1st Place in Semantic Robot Vision Challenge Software League - NSF / AAAI sponsored visual recognition competition
- 2006 Microsoft Research New Faculty Fellowship - highly selective, awarded to “the best new professors in computing disciplines today”
- 2005 IEEE ICCV Best Short Course Prize (with R. Fergus and A. Torralba)
- 1999 - 2002 National Science Foundation Postgraduate Fellowship
- 1999 - 2002 Paul and Daisy Soros Fellowship for New Americans
- 1999 - 2000 Princeton University Martin Dale ’53 Fellowship
- 1999 Princeton University Kusaka Memorial Prize in Physics

SPEECHES & SEMINARS (Selected)

“Artificial Intelligence: A Deeply Human Pursuit”

- 2019.10 Keynote, Society for Neuroscience annual conference, Chicago, USA
- 2018.04 Invited Lecture for the Lorna Casselton Memorial Lecture Series, Oxford University, Oxford, U.K.
- 2017.10 Keynote, Grace Hopper Conference, FL, USA

Chelsea

Finn

cbfinn at cs dot stanford dot edu

I am an Assistant Professor in [Computer Science](#) and [Electrical Engineering](#) at [Stanford University](#). My lab, [IRIS](#), studies intelligence through robotic interaction at scale, and is affiliated with [SAIL](#) and the [ML Group](#). I also spend time at Google as a part of the [Google Brain](#) team.

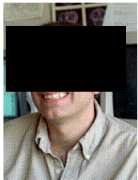
I am interested in the capability of robots and other agents to develop broadly intelligent behavior through learning and interaction.

Previously, I completed my Ph.D.



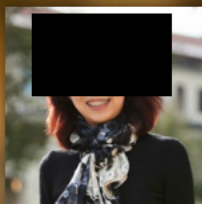
Pat Hanrahan [CANON USA Professor](#)

[Computer Graphics Laboratory](#)
[Computer Science](#) and [Electrical Engineering](#) Departments
[School of Engineering](#)
[Stanford University](#)



Gates Computer Science Building, Room 370 3B
Stanford, CA 94305-9035

Stanford | PROFILES

[BROWSE](#)

Fei-Fei Li

SEQUOIA CAPITAL PROFESSOR, CO-DIRECTOR OF THE STANFORD INSTITUTE FOR HUMAN-CENTERED ARTIFICIAL INTELLIGENCE (HAI) AND PROFESSOR, BY COURTESY, OF OPERATIONS, INFORMATION AND TECHNOLOGY AT THE GRADUATE SCHOOL OF BUSINESS

Computer Science

[PRINT PROFILE](#)[EMAIL PROFILE](#)[BIO](#)[RESEARCH & SCHOLARSHIP](#)[TEACHING](#)

Bio

Dr. Fei-Fei Li is the inaugural Sequoia Professor in the Computer Science Department at Stanford University, and Co-Director of Stanford's Human-Centered AI Institute. She served as the Director of Stanford's AI Lab from 2013 to 2018. And during her sabbatical from Stanford from January 2017 to September 2018, she was Vice President at Google and served as Chief

CONTACT



Academic

feifeili@stanfo

University - Fac

Department: C

- Honorary Societies: Tau Beta Pi, Eta Kappa Nu, Pi Mu Epsilon, 1973.

Corporate and Advisory Boards

- Google, Board of Directors, April 2004-present, Chair 2018-present.
- Cisco Systems, Board of Directors, January 2002-2018.
- Founding Chairman, Board of Directors, Atheros (now part of Qualcomm), 1998-2010.
- Technology Advisory Board, Microsoft Corporation, 1992-96.

Public Service and Nonprofit Activities

- Member, Strategic Council on Research Excellence, Integrity, and Trust, National Academy of Sciences, 2021-present.
- Board of Directors, Chan Zuckerberg Biohub, 2015-present.
- Board of Trustees, Gordon and Betty Moore Foundation, 2012-present.

Corporate influence and the academic computer science discipline. [2: MIT, hacks and hustlers]

Camille Akmut

June 23, 2022

abstract

Prosopography of a major academic center for computer science, with a focus on corporatization and corruption.

Introduction

The entire computer science faculty of MIT is submitted to a sociological analysis in this work.

For anyone born in the late 20th c., MIT is associated with one event more than any other : the death of Aaron Swartz. No other event defines it in the eyes of the public as much. They could write a thousand more reports yet it would not change anything.

MIT might have, once, been connected to figures such as Shannon, it is now intimately linked to Koch, Schwarzman, Epstein, Ito... – a list of scum so long, having reached such ungodly proportions, that make it nearly impossible, and certainly unpleasant, to keep track of.

It might also have been, albeit many decades ago, associated with early "hacker" culture, but no more. Evidently, things have changed. (Hal Abelson, who must have gone senile, works at Google, Gerald Sussman is a "Panasonic" professor...)

So, what does exactly MIT represent today? Not much : If one believes the motto of its Electrical engineering and Computer science Department, it is "*Where the future is invented*", a completely empty phrase, befitting of a hollow palace; that notably does not exclude a dark future...

If this author had to make a bet out of which American institution a technology unleashing the dystopia long dreamed up by cyberpunk authors might come out of, they would say : Harvard, (in particular the medical and biological centers), MIT or Stanford.

The future *is* in fact being created at those sites, but it is not one that is desirable : privatized, profit-driven, competitive more so than cooperative, and obsessed with reputation and image far beyond what is reasonable : in essence, dehumanized.

These Google'd up, Amazon'ified, Microsoft-employed and certified professors with no shame represent one dimension of that twisted, bizarre, tragic-comic and folly ridden future.

Hustlers befitting the last paragraph of this untimely introduction should not end without some, urgently needed, gangster rap advice,

Check yo self before you wreck yo self!

Abbreviations found in this work include,

Pr. = Professor
Ass. = Assistant, implied Professor
Dev. = Development, implied a Chair type
Co. = College
f. = fellowship
aw. = award
sch. = scholarship
fo. = founder
con. = consultant (advisor)
Sec. = Security
G = Google
F = Facebook
AMZ = Amazon
MS = Microsoft
DEC = Digital Equipment Corporation

(As -not merely- a convention, abbreviations for companies were capitalized, reflecting also their importance...)

	Named, sponsored chairs, positions	Corp. funding		Corp. employment, role	PhD
Hal Abelson	Class of 1922 Professor		x	G	MIT
Anant Agarwal	[Professor] ; " <i>CEO, edX</i> " (inv. ord.)		x	edX/2U; Tileria [fo.]	Stanford
Pulkit Agrawal	Steven and Renee Finn Career Dev. Pr. [Ass.]	AMZ, Salesforce aw.	x	Cavium, AI Foundry [fo.]	Berkeley
Mohammad Alizadeh	[Associate]	G, F award	x	MS, Cisco etc.	Stanford
Saman Amarasinghe	[Professor]		x	Determina/VMWare [fo.]	Stanford
Arvind	Charles W. & Jennifer C. Johnson Professor	Motorola ('collab.')	x	Sandburst/Broadcom [fo.]	Minnesot
Hari Balakrishnan	Fujitsu Professor	Bose award	x	Cloudseal/F, Meraki/Cisco [con]	Berkeley
Adam Belay	Jamieson Career Development Pr. [Ass.]		x	G	Stanford
Robert Berwick	[Professor]				MIT
Michael Carbin	[Associate]	MS fellowship	x	MS	MIT
Anantha Chandrakasan	Vannevar Bush Professor	IBM award(?)			Berkeley
Adam Chlipala	[Associate]		x	MS, Jane Street Capital	Berkeley
Isaac Chuang	[Professor]		x	IBM	Stanford
Henry Corrigan-Gibbs	Douglas Ross 1954 Career Dev. Pr. [Ass.]	G, F (+ DoD etc.)	x	MS	Stanford
Constantinos Daskalakis	[Professor]	G award, MS f.	x	MS	Berkeley
Erik Demaine	[Professor]	Bose award			Waterloo
Srini Devadas	Edwin Sibley Webster Professor		x	DEC, Sandburst; Synopsys [con]	Berkeley
Frederic Durand	Amar Bose Professor	MS f.			Grenoble
Joel Emer	[Professor]		x	Intel, Nvidia, DEC, Compaq	Illinois
Mohsen Ghaffari	[Associate]	G award			MIT
Manya Ghobadi	TIBCO Founders Professor [Ass.]	G award (4)	x	G, MS	Toronto
David Gifford	[Professor]				Stanford
Shafrira Goldwasser	RSA Professor	IBM award			Berkeley
W. Eric L Grimson	Bernard M. Gordon Professor				MIT
John Guttag	Dugald C. Jackson Professor		x	" <i>extensive industrial experience</i> "	Toronto
Song Han	[Assistant]	AMZ, F, Nvidia aw.	x	Google Brain	Stanford
Frederick Hennie III	[Professor]				MIT
Sam Hopkins	[Assistant]	MS f.	x	MS	Cornell
Daniel Huttenlocher	Henry Ellis Warren 1894 Pr.; Schwarzman Co.		x	"fintech" CTO; AMZ etc.	MIT
Piotr Indyk	Thomas D. and Virginia W. Cabot Pr.	Packard f.			Stanford
Daniel Jackson	[Professor]	IBM award	x	Logica	MIT
M. Frans Kaashoek	Charles A. Piper 1935 Professor		x	Sightpath/Cisco, Mazu Net [fo.]	Vrije Uni
David Karger	[Professor]	Packard f.	x	Akamai, Bell, Xerox	Stanford
Dina Katabi	Thuan 1990 and Nicole Pham Professor				MIT
Manolis Kellis	[Professor]		x	Xerox	MIT
Tim Kraska	[Associate]	G,MS,Intel,Siemens	x	G	ETHZ
Butler Lampson	[Adjunct]		x	MS, Xerox, DEC	Berkeley
Steven Leeb	Emanuel Landsman 1958 Professor	Bose			MIT
Charles Leiserson	Edwin Sibley Webster Professor		x	Akamai; Cilk Arts [fo.]	Carnegie
Barbara Liskov	Insitute Professor [sic!]		x	Mitre; HP, Cadence, DEC [con]	Stanford
Nancy Lynch	NEC Professor ['Software Science']				MIT
Samuel Madden	[Schwarzman] College of Computing Professor	IBM award	x	Cambridge Mobile Tele, Trifacta	Berkeley
Aleksander Madry	Cadence Design Systems Professor	G award	x	MS	MIT
Wojciech Matusik	[Professor]			Adobe, Disney, Mitsubishi	MIT
Muriel Médard	Cecil H. Green Professor		x	CodeOn [fo.]	MIT
Silvio Micali	Ford Foundation Professor		x	many [fo.]	Berkeley
Robert Miller	[Professor]	MS sch.	x	MS, DEC	Carnegie
Robert Morris	[Professor]		x	Y Combinator [fo.]; Meraki [con]	Harvard
Stefanie Mueller	[Associate]	MS f. (0.2 Mill.)			Hasso Pl
Anand V Natarajan	ITT Career Dev. Associate Professor				MIT
Alan Oppenheim	Ford Professor	Bose award	x	Chevron, Lockheed, Raytheon...	MIT
Asu Ozdaglar	MathWorks Professor; Schwarzman Co.	MS, NATO f.			MIT
Jonathan Ragan-Kelley	Edgerton Career Dev. Assistant Pr.		x	G	MIT
Manish Raghavan	[Assistant + Sloan Management]	MS f.			Cornell
Martin Rinard	[Professor]	AT&T award	x	Ikan Systems, Polygen	Stanford
Ronald Rivest	Institute Professor	NEC prize	x	RSA Sec/DellEMC, Verisign[fo.]	Stanford
Ronitt Rubinfeld	Edwin Sibley Webster Professor		x	NEC, IBM	Berkeley
Daniela Rus	Andrew '56 Erna Viterbi Pr.; Schwarzman Co.	Toyota	x	Mitre	Cornell
Daniel Sanchez	[Associate]	G, F aw., HP f.	x	G, Intel	Stanford
Arvind Satyanarayan	[Assistant]	G aw. f.	x	Google Brain, Apropose [fo.]	Stanford
Nir Shavit	[Professor]				Hebrew U
Julian Shun	[Associate]	G aw., F fellowship			Carnegie
Vincent Sitzmann	[Assistant]		x	Google AI	Stanford
Armando Solar-Lezama	[Professor]				Berkeley
Justin Solomon	[Associate]	G, AMZ aw., IBM	x	Mitre, Pixar	Stanford
Michael Stonebraker	[Adjunct]		x	many: Relational Technology[fo]	Michigan

Gerald Sussman	Panasonic Professor	Bose award			MIT
Vivienne Sze	[Associate]	G,F,Qualcomm aw.	x	Texas Instruments	MIT
Peter Szlovits	[Professor]				Caltech
Vinod Vaikuntanathan	[Professor]	MS, IBM f.	x	MS, IBM	MIT
Ryan Williams	[Professor]	G award, MS f.	x	IBM	Carnegie
Virginia Vas. Williams	[Associate]				Carnegie
Mengjia Yan	Homer A. Burnell Career Dev. Pr.		x	Nvidia	Illinois
Nickolai Zeldovich	[Professor]	G,Quanta Computer	x	SkyBlue (moka5) [fo.]	MIT
Victor Zue	Delta Electronics Professor		x	" <i>many multinational corp.</i> "	MIT

1. Corporate influence : named, sponsored chairs or positions

fig. MIT CS faculty - professor levels

Professors	53
Associate	11
Assistant	9 (incl. 4 'Career Development' Pr.s)
Adjunct	2

n,t=75

fig. MIT CS faculty : sponsored, named chairs

Professors	32 of 53	(60%)
Total*	36 of 57	(63%)

* (incl. 'Career Development' Pr.s)

fig. Sources of funding for MIT CS

	<i>likely source of funding or their usage</i>
Schwarzman e.g. College of Computing	Blackstone
Amar Bose	in- famous headphones worn in loud open offices made popular by tech companies
Cadence	Software company
Panasonic	Gerald Sussman's chair (whose duo with Abelson described computer 'science' as not a science)
Thomas Cabot	fail son, "worked" at his Father's company, a real self-made type
Thuan Pham	Uber CTO...

2. Education : exclusive private educations and social distance

fig. MIT CS faculty, PhD origin institution

MIT	24 (32%)
Stanford	17 (22%)
Berkeley	12 (16%)
CMU	5
Cornell	3
each two (4)	Illinois, Toronto
each one (10)	Minnesota, Waterloo, Grenoble, Vrije Univ., ETHZ, Harvard, Hasso Plattner, Hebrew Univ., Michigan, Caltech

n,t=75

fig. MIT CS faculty, PhD origin institution : geographical distribution

North America	70	(93%)
— USA	67	(89%)
Europe	4	(5%)
Israel	1	

n,t=75

fig. MIT CS faculty, PhD origin institution : US public vs. private

Private	51	(76%)
Public	16	

n,t=67

1/3 of MIT CS faculty have doctorate degrees from MIT : if undergraduate degrees and masters were accounted for, that proportion might reach about half. 90% of doctorate degrees held by MIT CS faculty were obtained from a US American institution. Of all doctorate degrees MIT and Stanford alone account for more than half MIT CS faculty educational background.

Among MIT CS faculty with doctorate degrees from US institutions, almost 80% of those are from a private university! It has to be hypothesized that this creates a very peculiar atmosphere, where private elite education cumulated with frequent private employment must create blind angles for these new age, and brave new world scholars, distinguished and less distinguished alike. This can include : a distance from the "least of these", a differential attitude for those who do not share their extremely homogeneous characteristics, and more importantly a lack of caring for certain topics that may be broadly classified as "social" (i.e. the social aspects of computer science and technology).

Corrigan-Gibbs had Dan Boneh for advisor at Stanford (which could not have hurt in getting an assistant professor position, across the country, at MIT). Kaashoek, one of few faculty with a European education, had for advisor Tanenbaum at Vrije.

3. Academic exchange and university resources as a jumping start for commercial activities

Computer science professors' best kept secret is the use of university resources as a jumping start for commercial activities : findings - which are often only possible through team work, partial or full public funding, etc. - are then turned into businesses whose profits in the end are however rarely shared equally by the entire community :

Hari Balakrishnan, *exempli gratia*, has reasons to smile on his academic profile page, as he has clearly mastered that fine art :

Commercial activities

- Founder and CTO of [Cambridge Mobile Telematics](#) (CMT). A spin-off from the CarTel project, CMT develops innovative mobile sensing technology and data analytics to improve driving behavior and make roads safer around the world. Its products are used daily by drivers worldwide in popular smartphone applications. In 2013, CMT launched the DriveWell mobile app, providing an accurate, scalable, and customizable telematics solution for automobile insurance providers and their customers. DriveWell not only measures driving behavior, but also helps users become better drivers. It provides a scalable technology for traditional usage-based insurance, but also allows insurers to think in terms of behavior-based models.
- Advisor to [Opaque Systems](#), [Ikgai Labs](#), [streamAlive](#), [Prescient Devices](#), [Walrus Security](#), [Flowmill](#) (acquired by Splunk), [Valtix](#), [Yugabyte](#), [Perch](#), [Lumo](#), [Cloudseal](#) (acquired by Facebook)
- Advisor, [Meraki Networks](#) (acquired by Cisco), 2006-2012. Meraki started by commercializing wireless mesh networking based on MIT's Roofnet project. It then pioneered cloud-based remote network management of deployed wireless access points in its products.
- Co-founder, [StreamBase Systems](#) (acquired by TIBCO), 2003-2008. StreamBase commercialized the Aurora and Medusa stream processing systems based on research conducted at MIT, Brown, and Brandeis. It developed a leading product for processing massive amounts of streaming data, with success particularly in the financial services.
- Consultant and algorithm architect for [Sandburst](#) (acquired by Broadcom), 2000-2002. Developed algorithms (and

II. Balakrishnan web site, "commercial activities" section

(Note Samuel Madden, another MIT CS faculty, works for the first of listed companies - which feels out of place, and is possibly a conflict of interest.)

A question that, in the presence of such widespread commercialization of science, is not least if professors tend to focus on problems that can turn a profit once applied as opposed to working on long term science with unclear commercial potential, but represent a benefit for humanity if solved.

However, on the other hand, when University life has served its purpose and starts getting in the way (of profit) it is just as easily discarded :

"In 2000, Arvind took a two-year leave of absence to start Sandburst, a fabless semiconductor company to produce a chip set for 10G-bit Ethernet routers. He served as its President until his return to MIT in September 2002. Sandburst was acquired by Broadcom in 2006." [Arvind website]

Another heavyweight of MIT EE and Computer science, Victor Zue, seems to be more flexible :

"Outside of MIT, Victor has consulted for many multinational corporations, and he has served on many planning, advisory, and review committees for the US Department of Defense" [Zue website]

combining, juicy, corp. consulting with DoD work.

3. Influence of money : Grants used as indicator for hiring researchers, and judging research value

Grants, their origin, and amount in particular appear to be increasingly used as a criterion for the selection of professors :

Mohsen Ghaffari, *exempli gratia*, as he was about to join MIT faculty was presented in the following terms :

"Mohsen Ghaffari will join the Department of Electrical Engineering and Computer Science in April 2022. (...) Before coming to MIT, he was on the faculty at ETH Zurich, where he received a prestigious European Research Council Starting Grant." [MIT Engineering page]

But here, "prestigious" can also be understood as a proxy for how much money - preferably in the millions - a professor can summon: this grant, the only one mentioned, is the highest amount Ghaffari had been able to get hitherto, 1.5 Million.

Ghaffari understands the rules of the game, and uncovers them at the same time, for it is one of the first things he decided to mention in his CV (presumably while shopping for professorships) : before any publications, before any research, evidently fortune getting in the form of grants is now a major, if not principal decision factor when hiring, or even judging the quality of research :

Mohsen Ghaffari		https://people.inf.ethz.ch/gmohsen/ghaffari@inf.ethz.ch	
RESEARCH INTERESTS	► Theoretical Computer Science / Algorithm Design and Analysis, — Focus: Distributed Algorithms, Parallel Algorithms, Network Algorithms, & Randomized Algorithms.		
EMPLOYMENT	► ETH Zurich — Assistant Professor (tenure-track) of Computer Science		since Fall 2016
EDUCATION	► Massachusetts Institute of Technology — Ph.D. in Electrical Eng. & Computer Science, GPA: 5.00/5 — S.M. in Electrical Eng. & Computer Science, GPA: 5.00/5		2016 2013
HONORS, AWARDS, & MAJOR GRANTS	— European Research Council Starting Grant, 2019–2024, 1 500 000 Euros. — Swiss National Foundation Project Grant, 2019–2023, 720 000 Swiss Francs. — Google Faculty Research Award, 2019. — Best Student Paper award at Int'l Symp. on Princ. of Distributed Computing (PODC). 2019.		

II. Ghaffari CV, first page

Stefanie Mueller, her PhD obtained at Hasso Plattner, Institute named after the founder of SAP, advertises and sells herself with funding totaling "3.8 million US Dollars" [CV, p. 8]

Similarly, Song Han, *exempli gratia*, Professor-soon-to-be is described, (or describes himself in the third person...),

"Song Han is an Associate Professor (starting July 1, 2022) at MIT's EECS (...) Song received ... multiple faculty awards from Amazon, SONY, Facebook, NVIDIA and Samsung. Song was named "35 Innovators Under 35" by MIT Technology Review" [Han website]

Increasingly, press reception and news coverage of research - never a "naturally" occurring phenomenon, but instead reliant on social capital and networking - is becoming another relevant criterion for determining the worth of science, and hence scientists.

In some CVs entire sections were dedicated to it. As for MIT faculty, they keep bringing up the MIT Technology Review's "Top 35 Under 35" - as its sole existence and purpose wasn't to make publicity for, coincidentally, MIT-affiliated people...

4. Corporate influence : industry orientation as positive feature of new age professors and students

John Guttag, known to the wide public for his introductory programming books, and a pedagogue, thought well to have his web site feature the mention :

"In addition to his academic activities, Professor Guttag has extensive industrial experience. He is currently Chairman of the Board of Directors and Chief Scientist of HEALTH[at]SCALE Technologies and on the Board of Directors of Frontiir."

Modern computer science teachers, it is implied, would not be complete without that - "extensive" - industrial experience. (And, mastery of third-person prose writing...)

A previous state of Guttag's web site had this paragraph replaced with the following :

"Professor Guttag currently serves on the technical advisory board of Vanu, Inc., on the Board of Directors of Empirix, and on the Board of Trustees of the MGH Institute of Health Professions." [28/03/2010]

Huttenlocher, *exempli gratia*, calls this - all things considered new - phenomenon "a mixed background" :

"He [Huttenlocher] has a mix of academic and industry background, having been a Computer Science faculty member at Cornell, researcher and manager at the Xerox Palo Alto Research Center (PARC), and CTO of a fintech startup. He currently serves as the board chair of the John D. and Catherine T. MacArthur Foundation and as a member of the board of Corning Inc. and Amazon.com." [Huttenlocher website bio.]

Further, Hutterlocher presents himself as someone whose *"research often bridges ... between academia and industry."*, ibid.

Hopefully his students will benefit in their humanistically-oriented, well rounded education, and elevation if one dare say, at MIT of plenty of FinTech enrichment and Amazon experience, and least etiquette..... (Red wine or Bitcoin talk first?)

Muriel Medard calls it, as many in her profession, elegantly "technology transfer" and even seems to see it as a service rendered to humankind,

"Muriel has over sixty US and international patents awarded, the vast majority of which have been licensed or acquired. For technology transfer, she has co-founded CodeOn, for which she consults, and Steinwurf, for which she is Chief Scientist." [Medard RLE page]

(see also Micali's CV)

A university professor, who does seem to understand what a university education is supposed to accomplish, notes cheeky cheery, in his vita :

" Enrollment in 6.813/6.831 has been strong, initially 35 students in 2003 and rising to over 200 students in 2014, indicating a substantial interest for this material among the students. Industry demand for these skills is likewise strong. Alumni of the course who went on to jobs at Google, Yahoo, Microsoft, Oracle, and Facebook have told me that they used what they learned in 6.831 when interviewing for their jobs, and have drawn on it many times since." [CV Miller, p. 7 - it's some UI class]

Too bad companies don't find free software, especially in its most radical aspects, as useful; or original hacker ideals and culture and languages, otherwise other programming languages and paradigms would be taught and used at the same rate as Java, Javascript and object-orientation (the un-holy trinity of the modern developer).

5. Corporate influence : donations in kind



II. Keysight "donation" of 120 oscilloscopes to MIT

Now it is left as an exercise for the reader to guess which brand of oscilloscopes will be used by the next two or three generations.

6. Apoliticism and -moralism as general ethos

MIT's faculty has the distinguished feature of having among its ranks individuals who seem to be simultaneously among the smartest and dumbest alive - by which we mean they combine high academic achievement with a total lack of political education, or any minimal morals.

Herr Sitzmann sells himself as a "top 3% of class" [CV, p. 1] in his native university in Bavaria, and then used his chops and smarts to join Google in 2020, and within Google the AI division! (at which point anyone reading the press, even vaguely, knew better). In that way, he is no different from his colleagues at MIT or Stanford, his PhD institution, who seem to have no qualms about working for projects like Google Brain.

Conclusion

MIT CS faculty live in a strange microcosm world : exclusive private education, increasingly connected to ever more exclusive social origins (one of the 'scholars' is the gold spoon daughter of a corrupt politician, another is the offspring of doctors, etc.); across the board employment in corporations like Google, Facebook, Jane Street; professorships funded by Capital firms; colleges paid for by Blackstone! Ties to Epstein and Ito (Abelson is very proud of his photo); what a Dreck place!

We must end an already untimely study on one last bitter hard-to-swallow note, so take it on the road, :

A capitalist world produces a university in its image, and there is no reason to believe that it should stay untouched from the logic of capitalism, while it reaches all other spheres of life, spreading destruction everywhere. Capitalists, smart and organized, pick those critics they can best deal with and elevate them ("ethical AI" researchers all the way to middle-aged liberal SF writers obsessed with reformism).

Celebrated Timnit Gebru is a *pure product* of that rotting culture : PhD at Stanford under Fei-Fei Li, (one of the absolute most morally bankrupt computer scientists of modern times, from whom she learned all the ropes of her trade), following which she joined the usual trio of Apple, Microsoft and finally Google – coming to a miraculous awakening, after having profited so greatly from the tech industry, in late 2020! Only liberal journalists, working for such mediocre newspapers at the NYT or Guardian, could fall for her ridiculous 'tech rebel' image. Gebru, through and through, is a copy conform result of her culture, which led her from Stanford to Google like so many before her, and there is no doubt she would still be working there where circumstances not different. Her so-called revolt was never based on principle. Did Madame Gebru not read the press before 2021? Did this ironic and paradoxical darling of journalists not see all the articles about Big Tech before? Was she in a coma in 2013? Gebru, like her peers (with whom she shared not only the same education but also the same social origins as the dotted daughter of two intellectuals), is defined by being smart and dumb at the same time : who else in their right mind would work, at Google and Microsoft of all places!, on "ethics in AI"...

Ref.

https://www.eecs.mit.edu/people/?fwp_role=faculty-cs

Again, most information were obtain directly through the MIT web site or via hyperlinking - exceptions are regularly indicated.

Hal Abelson	https://groups.csail.mit.edu/mac/users/hal/bio.html ; https://groups.csail.mit.edu/mac/users/hal/doing.html
Anant Agarwal	people.csail.mit.edu/agarwal/ ; 2u.com/about/leadership/anant-agarwal/ ; tilera.com/about_tilera/board_of_directors/
Pulkit Agrawal	https://people.csail.mit.edu/pulkitag/data/pulkit_CV_current.pdf [4 pp.]
Mohammad Alizadeh	https://people.csail.mit.edu/alizadeh/documents/Alizadeh-CV.pdf [7 pp.]
Saman Amarasinghe	https://people.csail.mit.edu/saman/
Arvind	https://www.csail.mit.edu/person/arvind ; http://csg.csail.mit.edu/Users/arvind/
Hari Balakrishnan	http://nms.csail.mit.edu/~hari/
Adam Belay	http://www.abelay.me/
Robert Berwick	https://humanbrains.fondazioneprada.org/en/speakers/robert-c-berwick/
Michael Carbin	https://people.csail.mit.edu/mcarbin/misc/cv.pdf [8 pp.]
Anantha Chandrakasan	https://chandrakasan.mit.edu/about/
Adam Chlipala	http://adam.chlipala.net/cv.pdf [18 pp.]
Isaac Chuang	https://www.rle.mit.edu/people/directory/isaac-chuang/
Henry Corrigan-Gibbs	https://people.csail.mit.edu/henrycg/
Constantinos Daskalakis	https://www.csail.mit.edu/person/costis-daskalakis ; https://people.csail.mit.edu/costis/
Erik Demaine	https://erikdemaine.org/cv.pdf [49 pp.]
Srini Devadas	http://people.csail.mit.edu/devadas/cv.html
Frederic Durand	https://www.csail.mit.edu/person/fredo-durand ; https://people.csail.mit.edu/fredo/DurandCV.pdf [5 pp.]
Joel Emer	https://people.csail.mit.edu/emerg/
Mohsen Ghaffari	https://people.inf.ethz.ch/gmohsen/ ; https://people.inf.ethz.ch/gmohsen/Short-CV.pdf
Manya Ghobadi	https://people.csail.mit.edu/ghobadi/mg-cv.pdf
David Gifford	https://be.mit.edu/directory/david-gifford
Shafi Goldwasser	https://people.csail.mit.edu/shafi/wordpress/wp-content/uploads/Shafi_Goldwasser_CV_2014.pdf
Eric Grimson	http://www.csail.mit.edu/user/807 ; http://people.csail.mit.edu/welg/
John Guttag	https://people.csail.mit.edu/guttag/
Song Han	https://songhan.mit.edu/
Frederick Hennie III	'Iterative Arrays of Logical Circuits' (1961), "Preface". [then, "Instructor in Electrical Engineering"]
Sam Hopkins	https://www.samuelbhobkins.com/cv.pdf [5 pp.]
Daniel Huttenlocher	https://web.mit.edu/hutt/www/
Piotr Indyk	people.csail.mit.edu/indyk/ ; csail.mit.edu/biographies/PI/bioprint.php?PeopleID=806 ; csail.mit.edu/user/1540
Daniel Jackson	https://web.mit.edu/pccs/people/jackson.html ; csail.mit.edu/biographies/PI/bioprint.php?PeopleID=166
M. Frans Kaashoek	https://people.csail.mit.edu/kaashoek/
David Karger	https://people.csail.mit.edu/karger/resume.pdf [2 pp.]
Dina Katabi	https://www.macfound.org/fellows/class-of-2013/dina-katabi#searchresults
Manolis Kellis	https://web.mit.edu/manoli/www/resume.pdf [40 pp.]
Tim Kraska	https://people.csail.mit.edu/kraska/
Butler Lampson	https://www.csail.mit.edu/person/butler-lampson ; http://bwl-website.s3-website.us-east-2.amazonaws.com/
Steven Leeb	https://meche.mit.edu/sites/default/files/cv/sbleeb_CV.pdf [4 pp.]
Charles Leiserson	https://www.csail.mit.edu/person/charles-e-leiserson ; people.csail.mit.edu/cel/Leiserson-CV.pdf [41 pp.]
Barbara Liskov	https://pmg.csail.mit.edu/~liskov/newcv-09.pdf [32 pp.]
Nancy Lynch	https://www.csail.mit.edu/person/nancy-lynch
Samuel Madden	http://db.csail.mit.edu/madden/
Aleksander Madry	https://madry.mit.edu/docs/Aleksander_Madry_CV.pdf [4 pp.]
Wojciech Matusik	https://cdfg.csail.mit.edu/wojciech
Muriel Médard	https://www.rle.mit.edu/people/directory/muriel-medard/
Silvio Micali	https://people.csail.mit.edu/silvio/CV.pdf [38 pp.]
Robert Miller	https://people.csail.mit.edu/rcm/mit-cv.pdf [29 pp.]
Robert Morris	https://www.csail.mit.edu/person/robert-morris ; http://www.meraki.com/about/
Stefanie Mueller	https://stefaniemueller.org/stefanie-mueller-cv.pdf [11 pp.]
Anand Natarajan	https://web.mit.edu/anandn/www/ ; https://engineering.mit.edu/faculty/anand-natarajan/
Alan Oppenheim	https://www.rle.mit.edu/wp-content/uploads/2022/03/AVO_CV-2022-02Feb_FINAL.pdf [47 pp.]
Asu Ozdaglar	https://asu.mit.edu/sites/default/files/documents/CV-Ozdaglar.pdf
Jonathan Ragan-Kelley	https://people.csail.mit.edu/jrk/
Manish Raghavan	https://mraghavan.github.io/
Martin Rinard	https://people.csail.mit.edu/rinard/cv.pdf [16 pp.]
Ronitt Rubinfeld	https://people.csail.mit.edu/rivest/
Ronitt Rubinfeld	https://people.csail.mit.edu/ronitt/ [CV, 8 pp.]
Daniela Rus	https://computing.mit.edu/daniela-rus/ [Schwarzman College of Computing page]
Daniel Sanchez	https://people.csail.mit.edu/sanchez/cv.pdf [6 pp.]
Arvind Satyanarayan	https://arvindsatya.com/files/cv.pdf [7 pp.]
Nir Shavit	https://www.csail.mit.edu/person/nir-shavit
Julian Shun	https://people.csail.mit.edu/jshun/cv.pdf [14 pp.]

Vincent Sitzmann https://www.vincentsitzmann.com/docs/cv_vincent_sitzmann_web.pdf [4 pp.]

Armando Solar-Lezama <https://people.csail.mit.edu/asolar/>

Justin Solomon <https://people.csail.mit.edu/jsolomon/assets/cv.pdf> [10 pp.]

Michael Stonebraker https://amturing.acm.org/award_winners/stonebraker_1172121.cfm ;
web.mit.edu/smadnick/www/DataSpace/Pre-proposal%20materials/Bios-Word/Bio%20-%20Stonebraker%20mikereresumensf%20-v2.doc [2 pp.]

Gerald Sussman <https://groups.csail.mit.edu/mac/users/gjs/biography.html>

Vivienne Sze <https://www.rle.mit.edu/eems/people/> ; medrc.mit.edu/people/vivienne-sze/ ; linkedin.com/in/viviennesze

Peter Szolovits <https://people.csail.mit.edu/psz/web/> ; <https://imes.mit.edu/people/faculty/szolovits-peter/>

Vinod Vaikuntanathan <https://people.csail.mit.edu/vinodv/Vinod-CV.pdf> [19 pp.]

Ryan Williams <https://people.csail.mit.edu/rrw/cv.pdf> [13 pp.]

Virginia V. Williams <https://people.csail.mit.edu/virgi/cv-vvw.pdf> [9 pp.]

Mengjia Yan <https://people.csail.mit.edu/mengjia/> ; <https://engineering.mit.edu/faculty/mengjia-yan/>

Nickolai Zeldovich <https://people.csail.mit.edu/nickolai/#bio> [CV, 6 pp.]

Victor Zue <https://people.csail.mit.edu/zue/> ; <https://groups.csail.mit.edu/sls/people/zue.shtml>

Appendix

- Oppenheim CV, pp. 1;5-6 "Chevron Oil", "Lockheed" etc. etc.
- Song Han website "Google Brain"
- Butler Lampson using his Microsoft contacts on the MIT EECS departmental page
- Stefanie Mueller CV, p. 8 (funding "*3.8 million*", selected press)
- Justin Solomon, pp.1;9 (awards)
- "Bio - Stonebraker mikeresumensf -v2" p. 1
- Template for rejecting corporate awards, for unimaginative academics :

Dear Madam/Sir at Google, Dear Madam/Sir at Microsoft, Dear Madam/Sir at Facebook...,

I reject your award because I believe it is not the role of corporations
to determine what constitutes good or bad research.

Curriculum Vitae of Alan V. Oppenheim

Title: Ford Professor of Engineering
 Professor of Electrical Engineering and Computer Science
 MIT Department of Electrical Engineering and Computer Science

Degrees

Massachusetts Institute of Technology	S.B.	1961
Massachusetts Institute of Technology	S.M.	1961
Massachusetts Institute of Technology	Sc.D.	1964
Tel Aviv University	Ph.D. (H)	1995

Professional Positions

1996 – present	Ford Professor of Engineering, MIT
1990 – 1996	Distinguished Professor. Department of Electrical Engineering and Computer Science, MIT
1976 – 1978	Cecil H. Green Professor of Electrical Engineering
1976 – present	Professor Department of Electrical Engineering and Computer Science, MIT
1978 – 1980	Associate Head Data Systems Division, MIT Lincoln Laboratory
1969 – 1976	Associate Professor Department of Electrical Engineering and Computer Science, MIT
1967 – 1969	Staff Scientist, MIT Lincoln Laboratory
1964 – 1969	Assistant Professor Department of Electrical Engineering, MIT

Principal Fields of Interest

Signal and Information Processing, Algorithms and Analysis
 Nonlinear dynamics and chaotic signals
 Applications of signal processing

Honorary Societies

National Academy of Engineering, Eta Kappa Nu, Tau Beta Pi, Sigma Xi

1979 – 1980	Defense Advanced Research Projects Agency Independent Review Committee for Oceanographic Detection and Categorization System
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Visiting Appointments

Dec 1992 – Jan 1993	Sackler Scholar Mortimer and Raymond Sackler Institute of Advanced Studies Tel Aviv, Israel
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Apr – May 1984	Sackler Scholar Mortimer and Raymond Sackler Institute of Advanced Studies Tel Aviv, Israel
----------------	---

Sep 1983 – Mar 1984	Visiting Scholar University of California at San Diego San Diego, California
---------------------	--

Jun 1980	Invited Lecturer Tsinghua University Beijing, People's Republic of China
----------	--

Jun 1977 – present	Guest Investigator Woods Hole Oceanographic Institution Woods Hole, Massachusetts
--------------------	---

Sep 1972 – Jun 1973	Visiting Scientist E.N.S.E.R.G., University of Grenoble, Grenoble, France
---------------------	---

1973	Visiting Professor University of Erlangen Erlangen, West Germany
------	--

Industrial Consulting

2016 – present	Technical Advisory Board, Lumii Inc.
----------------	--------------------------------------

2015 – present	Technical Advisory Board, Digital Cognition Technologies, Inc.
----------------	--

2008 – 2013	Technical Advisory Board, Axis Semiconductor
-------------	--

2001 – 2010	Transchip, Inc.
-------------	-----------------

2000 – 2004	Thinking Investments, Inc.
1999 – 2001	TechOnLine, Inc.
1997 – 2001	Trakus, Inc.
1996 – 1999	Technical Advisory Board, Libit Signal Processing, Ltd.
1996 – 1997	Goldman Sachs
1996 – 2014	Aptec Group
1990 – 1993	Center for Communications Research
1986 – 1999	Atlantic Aerospace Electronics Corporation
1984 – 1985	MA/COM Linkabit
1982 – 1984	Nippon Schlumberger
1980 – 1990	Texas Instruments
1979 – present	Lockheed Sanders, Inc.
1977 – 1982	Schlumberger-Doll Research Laboratories
1976 – 1977	Acoustic Research, Inc.
1975	Chevron Oil Research Company
1974 – 1977	Stein Associates
1971 – 1985	Computer Signal Processing, Inc.
1971	Naval Underwater Sound Laboratory
1971	Concord Control Company
1966 – present	M.I.T. Lincoln Laboratory
1964 – 1967	Arthur D. Little
1964 – 1965	Raytheon
1963 – 1964	E.G.& G.

Curriculum Vitae

✉ sitzmann@mit.edu
📄 vsitzmann.github.io

Education

- since 07/20 **Postdoctoral Associate**, *Massachusetts Institute of Technology*, Cambridge, MA.
Computer Science and Artificial Intelligence Laboratory.
- 07/19–01/20 **Research Intern**, *Google AI*, New York City, NY.
- 09/17–04/20 **Doctor of Philosophy**, *Stanford University*, Stanford, CA.
Electrical Engineering Department, Stanford Graduate Fellowship.
- 09/15–06/17 **Master of Science**, *Stanford University*, Stanford, CA.
Computer Science Department, Fulbright Fellowship, Distinction in Research.
- 10/11–04/15 **Bachelor of Science**, *Technical University of Munich*, Germany.
Electrical Engineering, degree awarded with high distinction (top 3% of class).



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Butler Lampson

PEOPLE

Faculty

Faculty AI+D

Faculty CS

Faculty EE



Adjunct Professor of CS and Engineering

blampson@microsoft.com

(425) 703-5925

Office: 32-G924

[Website](#)

RESEARCH AREAS

[Computer Architecture](#)
[Systems and Networking](#)

About



I am an assistant professor in EECS at MIT. I completed my Ph.D. at Stanford University advised by Prof. Bill Dally. I was a postdoctoral researcher at Google Brain before joining MIT.

My research focuses on energy-efficient deep learning computing, at the intersection between machine learning and computer

LevelUp - Career Pathways in STEM, MIT Society of Women Engineers, Keynote Speaker	2017
RSS – Women in Robotics Workshop, Invited Talk	2017
The Tech, MIT Newspaper, Immigrant Members of the MIT community, Interview	2017
ACM CHI Conference, Diversity Lunch Table Leader	2016

Funding

\$75,000	MIT Research Support Committee	2021
\$250,000	MIT Accenture Seedfunds	2021
\$45,000	MIT Portugal Seedfund	2021
\$75,000	Sloan Fellowship	2020
\$200,000	Microsoft Research Faculty Fellowship	2020
\$20,000	MIT Indonesia Seed Fund	2020
\$125,000	NSF Medium Discovery and Exploration of Design Trade-Offs	2020
\$60,000	MIT MechE Seedfund	2020
\$200,000	MIT-Skoltech Seedfund	2020
\$90,000	MIT Portugal Seedfund	2020
\$350,000	NSF Small: Learning Maker Skills By Building Game Props	2020
\$60,000	AFFOA (Advanced Functional Fabrics of America)	2020
\$150,000	MIT.nano Sense	2019
\$300,000	MIT Ford Initiative	2019
\$75,000	MIT International Design Center	2019
\$90,000	MIT Portugal Program Seed Fund	2019
\$525,000	NSF CAREER: Adaptive Physical Interfaces	2019
\$47,000	MIT International Design Center	2018
\$200,000	MIT Learning Initiative	2018
\$75,000	MIT Research Support Committee	2018
\$75,000	MIT Skoltech Seedfund	2018
\$125,000	MIT-Portugal Program Seed Fund	2018
\$452,000	NSF CHS: Small: An Integrated Editing Environment for 3D Printing	2017
\$75,000	MIT Skoltech Seedfund	2017
\$100,000	NSF Eager: Cybermanufacturing (together with Emmanuel Sachs)	2017

= **ca. \$3.8 million**

Reviewing: NSF Panel Reviewer 2019, 2021

Selected Press

MIT News. Creating 3-D-printed “motion sculptures” from 2-D videos.	2018
3DPrint. MIT CSAIL Creates 3D Printable Sculptures of the Body in Motion.	2018

Justin Solomon

jsolomon@mit.edu · 617-324-6738 (office) · 703-623-4762 (cell)
people.csail.mit.edu/jsolomon/

Work: 32 Vassar Street, room 32-D460
Cambridge, MA 02139

Home: 30 Garrison Avenue #1
Somerville, MA 02144

Education

- 2010-2015 **Ph.D. in Computer Science, Stanford University** (Advisor: Leonidas Guibas) *Stanford, CA*
Geometric Computing Group, Department of Computer Science
• Dissertation: “Transportation Techniques for Geometric Data Processing”
• Distinction in Teaching (completed 2013)
• Hertz Foundation Graduate Fellowship, National Science Foundation (NSF) Graduate Research Fellowship, and National Defense Science & Engineering Graduate (NDSEG) Fellowship
- 2010-2012 **Master of Science in Computer Science, Stanford University** (Advisor: Leonidas Guibas) *Stanford, CA*
Qualifying exam in Computer Science Theory (topic: “PDE Approaches to Graph Analysis”)
- 2006-2010 **Bachelor of Science, Stanford University** (Advisors: Leonidas Guibas and Richard Schoen) *Stanford, CA*
Double major in Computer Science (honors) and Math (honors); GPA: 4.138
- 2002-2006 **Thomas Jefferson High School for Science and Technology (TJHSST)** *Alexandria, VA*

Research Experience

- 2016-Present **MIT, Department of Electrical Engineering & Computer Science** *Cambridge, MA*
X-Consortium Career Development Assistant Professor (2016-2020), Associate Professor (2020-Present): Lead the Geometric Data Processing group in MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL), studying processing, analysis, and editing of geometric data; teach and develop undergraduate and graduate courses.
- 2015-2016 **Princeton University, Program in Applied & Computational Mathematics** *Princeton, NJ*
Postdoctoral fellow: Helped design optimization algorithms for cryo-electron microscopy (PI: A. Singer); research and collaboration in geometry processing, computer graphics, machine learning, and other disciplines; presented findings at academic conferences and symposia.
- 2010-2015 **Stanford University, Geometric Computing Group** *Stanford, CA*
Graduate Research Assistant: Developed algorithms for geometry processing, machine learning, and graphics using techniques from continuous differential geometry, partial differential equations, and optimization; collaborated with researchers at Stanford and other universities; presented findings at academic conferences and group meetings; led instruction and development of course materials.
- 2014 **University of Southern California, Department of Computer Science** *Los Angeles, CA*
Visiting Research Fellow: Studied numerics for Markov chain Monte Carlo (MCMC) sampling and performance capture with machine learning and graphics groups; led seminars and discussions on optimal transportation and geometric PDE; guest lecturer in introductory computer graphics course.
- 2007-2012 **Pixar Animation Studios, Tools Research Group** *Emeryville, CA*
Summer Intern (2007, 2008, 2009), Part Time Research Assistant (2008-10, 2012): Designed efficient algorithms for image processing using local histograms; examined alternatives to the bilateral filter for computational photography, stylization, and painterly rendering; implemented filters on the GPU and in Pixar’s compositing software; prepared SIGGRAPH submissions and other papers. *Summer Intern (2007):* Designed specialized linear solvers with fast rates of convergence for cloth simulation; demonstrated these algorithms using Pixar’s physics simulation system.
- 2008-2010 **Stanford University, Geometric Computing Group** *Stanford, CA*
Research Assistant: Formulated methods for replicating regular surface features and detecting intrinsic symmetries; developed algorithms for approximating Killing vector fields to represent continuous surface self-isometries using machinery from discrete and continuous Riemannian geometry.
- 2010 **British Library Sound Archive, Edison Fellowship Program** *London, UK*
Visiting Researcher: Studied the history of Elgar’s Cello Concerto using traditional and computerized techniques; developed software to visualize differences between various cellists’ interpretations of the concerto.
- 2007-2008 **Stanford University, Fedkiw Group** *Stanford, CA*
Research Assistant: Supported research in hair simulation by implementing hair rendering and reflectance models; contributed to testing frameworks for computational geometry methods.
- 2006 **Mitsubishi Electric Research Laboratory, Computer Vision Applications & Devices** *Cambridge, MA*
Summer Intern: Designed multilinear models for representing face shape and reflectance simultaneously.
- 2005-2007 **MITRE Corporation** *McLean, VA*
Technology Intern (part time on call): Developed a framework for iris recognition using multi-camera input; presented the system to engineers consulting for the US Department of Homeland Security.
- 2005 **Massachusetts Institute of Technology (MIT), Computer Graphics Group** *Cambridge, MA*
Mentorship (Research Science Institute): Applied multilinear modeling to face shape estimation from reflectance/video.

- Organizer, NIPS 2014 Workshop on Optimal Transport & Machine Learning (with M. Cuturi and G. Peyré)

Reviewer

A complete list of recent journal/conference reviewing engagements can be provided on request.

Membership

- Sigma Xi, Scientific Research Honor Society (full member)
- Association for Computing Machinery
- ACM SIGGRAPH
- Computer Science Teachers Association
- Council on Undergraduate Research

Honors and Awards

2022	Google Research Scholar Award
2021	MIT EECS Outstanding Educator Award
2021	MIT Teaching with Digital Technology Award (student-nominated)
2020	Junior Bose Award for Excellence in Teaching, MIT School of Engineering
2018	NSF BIGDATA Award (with P. Rigollet)
2018	NeurIPS Top Reviewer Award
2018	Amazon Research Award
2018	MIT-IBM Watson AI Lab Exploratory Grant
2017-20	Prof. Amar G. Bose Research Fellowship
2017	ACM Future of Computing Academy
2017	Army Young Investigator Award (proposal: "Smooth Modeling of Flows on Graphs")
2017	Forbes 30 Under 30: Science
2015-2016	NSF Mathematical Sciences Postdoctoral Research Fellowship
2011 & 16	U.S. Junior Oberwolfach Fellow, National Science Foundation
2014	George E. Forsythe Memorial Award for Excellence in Student Teaching
2010-2015	Hertz Foundation Fellowship (inaugural Hertz-Google Fellow) & NSF Graduate Research Fellowship
2011-14	Bio-X Travel Subsidy Awardee, Stanford Bio-X Interdisciplinary Program
2010-14	Stanford Applied Music Scholarship
2010-13	National Defense Science and Engineering Graduate (NDSEG) Fellowship
2010	Second Place, Symposium on Geometry Processing (SGP) Best Paper Awards
2010	Edison Visiting Fellowship, British Library
2010	Frederick E. Terman Award for Scholastic Achievement in Engineering, Stanford University
2010	J.E. Wallace Sterling Award for Scholastic Achievement, Stanford University
2010	Outstanding Summerfield Scholar & Undergraduate of the Year, Phi Kappa Psi Foundation
2010	Firestone Medal for Excellence in Undergraduate Research
2009	Pixar Animation Studios Inventor Recognition Award
2009	Hoefer Prize for Excellence in Undergraduate Writing, Stanford University
2008	Barry M. Goldwater Scholarship & Tau Beta Pi Engineering Honor Society
2007	Boothe Prize for Excellence in Writing, Stanford University
2007	Finalist, Stanford CS 248 Video Game Design Competition (Project: "Paper Airplane 3D")
2007	Student Research Competition Finalist and poster presenter, SIGGRAPH 2007
2007	President's Award for Academic Excellence in the Freshman Year, Stanford University
2007	Team Finalist, ACM Intercollegiate Programming Contest (ICPC), Tokyo, Japan
2006	Finalist, Intel Science Talent Search (Project: Three-Dimensional Face Recognition from Video)
2004-2006	Scholarships: National Merit, Naval Research, Micron Science & Tech., Intel Excellence in CS
2006	Awards: Mu Alpha Theta Award; USA Today All-USA High School First Academic Team (5/18/06)
2006	Third Place (National) and First Place (State), Math/CS, Junior Science and Humanities Symposium
2005 & 06	First (05) and Second (06) Grand Prize, Computer Science, International Science and Engineering Fair
2005	Research Science Institute, Massachusetts Institute of Technology (Top Project Presentation Award)
2005	Fellowships: Davidson Institute for Talent Development, Department of Homeland Security
2004	Outstanding Intern Award, Naval Science & Engineering Apprenticeship Program (SEAP)

Other Activities

2020-Present	Mentor, Científico Latino
2018-Present	Cellist, No-Name Orchestra of Boston (2019 soloist: Elgar cello concerto)
2017-Present	Cellist, New Philharmonia Orchestra
2016-Present	Faculty mentor, Research Science Institute (RSI)
2020-2021	Mentor (high school mathematics), Boston Partners in Education
2016-2021	Metric Geometry and Gerrymandering Group (MGGG)
2018-2019	Faculty host, MIT Vest Scholarships
2015-2016	Cellist, Bravura Philharmonic Orchestra & Westminster Community Orchestra

Biographical Sketch: Michael Stonebraker

MIT Computer Science and Artificial Intelligence Laboratory
32 Vassar St., room 32-G922
Cambridge, MA. 02139
Tel (603) 714-4451
Email: stonebraker@csail.mit.edu

Areas of Special Interest

Database systems, data warehouses, federated database systems, database systems for new application areas, operating systems

Professional Preparation:

B.S.E.E. - Princeton University 1961
PhD Computer Information and Control Engineering - Univ. of Michigan 1971

Appointments

University of California, Berkeley – Asst. Professor 1971-1976,
Assoc. Professor 1976-1982,
Professor 1982-1994,
Professor of the Graduate School 1994-1999.
Massachusetts Institute of Technology – Senior lecturer 2001-2002
Adjunct Professor 2002-
Ingres Corporation – Founder and Chief Technology Officer - 1980-1992
Illustra Corporation – Founder and Chief Technology Officer - 1992-1996
Informix Corporation – Chief Technology Officer - 1996-2000
Cohera Corporation – Founder and Chief Technology Officer - 1997-2001
Required Technology, Inc. Chief Technology Officer 2001- 2002
Streambase, Inc. – Founder and Chief Technology Officer – 2003-
Vertica Systems, Inc. – Founder and Chief Technology Officer – 2005 –

Awards and Honors:

ACM Software System Award 1988
ACM SIGMOD Innovation Award 1992
National Academy of Engineering 1998
Computer Reseller News – Hall of Fame Member, 1999
IEEE John von Neumann Medal 2005

Relevant Publications (5)

Michael Stonebraker et. al., “Whither DBMS Architecture,” Proc 2007 CIDR Conference, Asilomar, Ca., Jan 2007
Michael Stonebraker, et. al., “C-Store: A Column-oriented DBMS,” Proc. 2005 VLDB Conference, Trondheim, Norway, Sept 2005.
Michael Stonebraker, Ugur Cetintemel, “One Size Fits All: An Idea Whose Time Has Come and Gone,” Proc. 2005 ICDE Conference, Tokyo, Japan, April 2005.
Hari Balakrishnan, Magda Balazinska, Don Carvey, Ugur Cetintemel, Mitch Cherniack, Christian Convey, Eddie Galvez, Jon Salz, Michael Stonebraker, Richard Tibbetts, Stan Zdonik, “Retrospective on Aurora,” VLDB Journal 13(4), p370-383 (2004)
Daniel Abadi, Don Carvey, Ugur Cetintemel, Mitch Cherniack, Christian Convey, Sangdon, Michael Stonebraker, Nesime Tatbul, Stan Zdonik, “Aurora: A New Model and Architecture

Corporate influence and the academic computer
science discipline. [3: Berkeley, public funds and
private interests]

Camille Akmut

June 26, 2022

abstract

Prosopography of another major academic center for computer science, with
the distinction of being a public place of learning and research...

Introduction

In the same way that a portion of consumers of cyberpunk media think "wow! so COOL!", at every turn of a page and flashing image, entirely missing the point and overall message, we are sure that some readers will go through these studies taking notes on what the latest academic fashions and trends are, where to apply, where to get their next funding from.

In other words, they see sociology as a book of good manners and and reduce it to a manual on how to get ahead in life. Some people are just lost beyond redemption, and it is unfortunately not a matter of lack of education with them.

Hustlers should be in the textual company of real hustlers, who at least had style : The Notorious BIG, as he tells us in one of his songs, went from eating canned tuna to mingling with the elite. May these 'scholars' escape his programmed fate, and live long lives in the public service – as they, *theoretically*, should...

abbreviations

P = professor
con = consultant ('advisor', 'counsel', ...)
fo = founder
f. = fellowship
G = Google
I = Intel
AMZ = Amazon
DEC = Digital Equipment Corporation
M = Million, implied US Dollars
LockheedM = Lockheed Martin

	Academic rank	Corp. funding		Corp. employment, side-role	PhD
Pieter Abbeel	Professor	G c. 1M	x	AIX Ventures, Covariant [fo.], OpenAI [con]	Stanford
Krste Asanovic	Professor		x	SiFive Inc. [fo.]	Berkeley
Babak Ayazifar	Teaching P.		x	Patent prosecution at Ropes & Gray	MIT
Peter Bartlett	Professor	G award	x	SAC Capital Advisors, Gen. Electric [con]	Queensla
Alexandre Bayen	[Liao-Cho] P.	G, IBM awards	x	G, Uber, BAE Systems [con]; fo. many	Stanford
Christian Borgs	Professor		x	MS ("for over 22 years")	Munich
John F. Canny	Professor	Packard f.			MIT
Jennifer Chayes	Professor		x	MS ("for over 20 years")	Princeton
James Demmel	Professor				Berkeley
Alexei Alyosha Efros	Professor				Berkeley
Laurent El Ghaoui	Professor	G grant	x	SAC Capital Management	Stanford
Hany Farid	Professor		x	Snap, TikTok; fo. [con]	Pennsylva
Armando Fox	Professor	G grant, IBM, Intel awards	x	Intel; G, IBM [con]; fo.	Berkeley
Jack Gallant	'Below the line' P.	F "392,000" ('brain activity')			Yale
Dan Garcia	Teaching P.	G (1M), LockheedM, Apple	x	"Google CS4HS Ambassador"	Berkeley
Ken Goldberg	Professor		x	Ambidextrous Robotics [fo.]	Carnegie
Shafi Goldwasser	Professor	IBM award	x	Duality [fo.]	Berkeley
Venkatesan Guruswami	Professor	IBM f.	x	MS	MIT
Marti Hearst	Professor	G, AMZ, IBM, MS.. (3.5M)	x	IBM, HP, Xerox	Berkeley
Joseph M. Hellerstein	Professor	IBM award	x	Intel; Trifacta, Cohera/Oracle [fo.]	Wisconsin
Paul N. Hilfinger	Teaching P.				Carnegie
Michael Jordan	[Pehong Chen] P.				UCSD
Anthony D. Joseph	Professor				MIT
Daniel Klein	Professor	MS f.		IBM, Cisco, Sun etc. [con]	Stanford
John D. Kubiawicz	Professor	IBM f.			MIT
Jennifer Listgarten	Professor	'Chan Zuckerberg' [ie. F]	x	MS	Toronto
Michael Lustig	Professor		x	Jigami Ltd.	Stanford
Jitendra Malik	Professor	IBM aw., f.	x	G, Yahoo!	Stanford
Jelani Nelson	Professor	G, IBM aw., Xerox, Akamai f.			MIT
James O'Brien	Professor	Dreamworks aw.	x	Pixelux; Juice Labs [con]; Get Klothed [fo.]	Georgia T
Eric Paulos	Professor		x	Intel	Berkeley
Kristofer Pister	Professor		x	Smart Dust/Linear Technology [fo.]	Berkeley
Kannan Ramchandran	Professor		x	AT&T	Columbia
Satish Rao	Professor		x	NEC	MIT
Sylvia Ratnasamy	Professor	Intel, Yahoo! aw.	x	Intel	Berkeley
Benjamin Recht	Professor				MIT
Jaijeet Roychowdhury	Professor	Nokia prize	x	AT&T, CeLight Inc.	Berkeley
Stuart J. Russell	[Smith-Zadeh] P.	['NATO Scholar']	x	IBM	Stanford
Anant Sahai	Professor		x	Enuvis, Inc.	MIT
Koushik Sen	Professor				Illinois
Sanjit A. Seshia	Professor		x	MS, HP; Decyphir Inc. [fo]	Carnegie
Jonathan Shewchuk	Professor				Carnegie
Alistair Sinclair	[Kikuo Kaoru Ogawa] P				Edinburg
Dawn Song	Professor	G, IBM, 'major tech companies'			Berkeley
Yun S. Song	Professor	'Chan Zuckerberg'[F], Packard f			Stanford
Costas J. Spanos	Professor		x	DEC	Carnegie
Ion Stoica	Professor		x	Databricks, Conviva [fo.]	Carnegie
Bernd Sturmfels	Professor	Packard f.			Washingt
Claire Tomlin	[Charles Desoer] P.				Berkeley
Umesh Vazirani	[Roger Strauch] P.				Berkeley
David A. Wagner	Professor	IBM aw., Intel SCRUB			Berkeley
Martin Wainwright	Professor				MIT
Laura Waller	Professor	Zuckerberg[F], Moore[I], Packard			MIT
John Wawrzyniek	Professor		x	Schlumberger [con]	Carnegie
Katherine A. Yelick	Professor	I and MS 6M [+ DoD]			MIT
Bin Yu	Professor	MS ['founding co-director' lab]	x	Lucent	Berkeley

- . Composition of the test population

Included in this study were all full professors of computer science at Berkeley. A notable exclusion are emeritus professors as we wanted to get a clear picture of Berkeley today - as opposed to how it might have, still, been 30 or 40 years ago. We hypothesize that the group of emeritus professors, born around or in the first half of the 20th century, differ in ways that are significant, and have diverging characteristics when compared to the current generation (24 in total¹). "Teaching professors", so called, were included even though they may not be viewed by some as completely equal to non-prefix, qualifier, potentially diminutive-free professors (8 in total, incl. emeritus²). Berkeley has a peculiar nomenclature where affiliate appointments are called "below the line" - This affects only 1 individual relevant to the study. Finally, 3 professors "in residence" were not taken into account for the analysis.

(n=56)

1. Education : a private education as defining feature for CS faculty

fig. Berkeley CS professors by PhD institution

Berkeley	16	(29%)
MIT	12	(21%)
Stanford	8	(14%)
Carnegie Mellon	7	
one each :	13	Columbia, Edinburgh, Georgia Tech, Illinois, Munich, Pennsylvania, Princeton, Queensland, Toronto, UCSD, Washington, Wisconsin, Yale

n,t=56

fig. Berkeley CS professors by PhD institution : geographical origins

USA	52	(93%)
Canada	1	
Australia	1	
UK	1	
Europe (rest)	1	

n,t=56

fig. Berkeley CS professors by PhD institution : US public vs. private

Public	21	(40%)
Private	31	(60%)

n,t=52

Broadly speaking Berkeley appears to be more open to professors with a public educational background (here measured by PhD origin), however primarily recruited from its own ranks (about 1/3 overall). This becomes especially obvious when compared to recruitment practices by Stanford and even more so MIT.

Although this announcement must probably be tempered as former MIT and Stanford PhD students combined still form over one third, (35%), of Berkeley CS faculty.

However, it is still astonishing that even a public institution should prefer private profile faculty to its own public model of education : a minority, 40% of Berkeley CS faculty have obtained their PhD from public US colleges. A private education, even at the University of California's grandest institution, remains the best sign of a fine scholar - and by which future colleagues are recognized...

¹e.g. Richard Karp (algorithms), Christos Papadimitriou (algorithms), David Patterson (comp. architecture, sunseting at Google)..

²Among them is Brian Harvey, one of the great functional programming teachers, and one of few computer scientists with a broad education beyond merely their own little yard. Among associate teaching professors is, exempli gratia, John DeNero (a Google fanboy/former employee). etc.

2. Corporate influence : funding, employment, "consulting" etc.

Pieter Abbeel, (a product of Stanford), has the dubious honor of ranking high among morally bankrupt computer scientists : when asked about Google investments in a form used by (public) universities to determine conflicts of interests, he first declared none... but, then recalled the small amount of 100,000 to possibly 1 million of his own (or family) dollars in Google.

B. Do you, your spouse or registered domestic partner, or your dependent children have an investment of \$2,000 or more in the entity listed in Part 1 above? ☒ No ☒ Yes – value is: <table><tr><td>☐ \$2,000 - \$10,000</td><td>☐ \$10,001 - \$100,000</td></tr><tr><td>☒ \$100,001 - \$1,000,000</td><td>☐ Exceeds \$1,000,000</td></tr></table> Date Disposed: ____/____/____, if applicable C. Have you received income of \$500 or more from the entity listed in Part 1 during the reporting period? ☒ No ☐ Yes – amount is: <table><tr><td>☐ \$500 - \$1,000</td><td>☐ \$1,001 - \$10,000</td></tr><tr><td>☐ \$10,001 - \$100,000</td><td>☐ Exceeds \$100,000</td></tr></table> Was this income received through your spouse or registered domestic partner? ☐ No ☐ Yes	☐ \$2,000 - \$10,000	☐ \$10,001 - \$100,000	☒ \$100,001 - \$1,000,000	☐ Exceeds \$1,000,000	☐ \$500 - \$1,000	☐ \$1,001 - \$10,000	☐ \$10,001 - \$100,000	☐ Exceeds \$100,000	Description: _____ _____ 4. Verification I have used all reasonable diligence in preparing this statement. I have reviewed this statement and to the best of my knowledge the information contained herein and in any attached schedules is true and complete. I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Date Signed <u>10/20/2014</u> (month, day, year) Signature <u>PAbbeel</u> (File the originally signed statement with your university.)
☐ \$2,000 - \$10,000	☐ \$10,001 - \$100,000								
☒ \$100,001 - \$1,000,000	☐ Exceeds \$1,000,000								
☐ \$500 - \$1,000	☐ \$1,001 - \$10,000								
☐ \$10,001 - \$100,000	☐ Exceeds \$100,000								

The Form 700-U is for university use only. FPPC Form 700-U (2013/2014)

He takes great care in hiding this information from his various web sites (despite being chit-chatty on about everything else).³

To make full sense of that "blunder", one must also consider that Abbeel is part of an organization called "OpenAI" which is presented as antithesis to Google's Deepmind; except it is funded by Musk and a series of other Tech characters and fixtures, (from MS to YC), that be trusted as much which is to say just as little...

Babak Ayazifar, exempli gratia, has a colorful corporate employment history and background as a patent prosecutor : per Berkeley EECS's profile,

"Prior to his arrival at Berkeley, Babak was a Technical Specialist in the Intellectual Property and Technology Group of Ropes & Gray, LLP in Boston. His patent prosecution and related activities spanned a range of technologies, such as mechanical devices, intravascular MRI, DNA Microarray data analysis, and encrypted communication using chaotic systems. Babak is a patent agent, registered to practice before the US Patent and Trademark Office"

Dan Garcia, a diverse pedagogue, teaches about e.g. "Social Implications of Computing", but saw no issues with funding from Lockheed or his years if not decades long collaboration with Google (in addition ot other companies).

Suffering from similar schizophrenia is psychologist Jack Gallant, a member of the Berkeley "Center for Ethics" (where he is on the Steering Committee), and whose description there reads :

"He is actively involved in neuroethics and the potential implications of future neurotechnology for privacy, agency and the sense of self. He regularly gives presentations on implications of neuroscience and neurotechnology in the law to the National Academy of Sciences and to Circuit Courts."

Except we know from financial disclosure forms that Gallant received about half a million from Facebook (in 2017), for research on - quote - "Decoding imagined speech from brain activity". It sounds like someone trying to transcribe what people think...

³Gallant likewise about his dealings with Facebook.

CALIFORNIA FORM 700-U FAIR POLITICAL PRACTICES COMMISSION		STATEMENT OF ECONOMIC INTERESTS FOR PRINCIPAL INVESTIGATORS <i>A Public Document</i>		DATE RECEIVED Campus Use Only
Please type or print in ink.				Campus _____ ID No _____
NAME (LAST)	(FIRST)	(MIDDLE)	TELEPHONE NUMBER	
Gallant	Jack		(510) 361-9750	
ACADEMIC UNIT OR DEPARTMENT		MAIL CODE	E-MAIL ADDRESS	
Helen Wills Neuroscience Institute		3192	gallant@berkeley.edu	
TITLE OF RESEARCH PROJECT				
Decoding imagined speech from brain activity				
1. Information Regarding Funding Entity (Use a separate Form 700-U for each funding entity.) Name of Entity: Facebook Address of Entity: 1 Hacker Way, Menlo Park, CA 94025 Principal Business of Entity: Technology / Internet Amount of Funding: \$ <u>392,000</u> Estimated ☐ Actual ☐			3. Filer Information - Cont. D. Have you received loans from the entity in Part 1 for which the balance exceeded \$500 during the reporting period? No ☒ Yes ☐ - highest balance ☐ \$500 - \$1,000 ☐ \$1,001 - \$10,000 ☐ \$10,001 - \$100,000 ☐ Exceeded \$100,000 If you checked "yes," was the loan ☐ Secured ☐ Unsecured Interest rate _____ % Was the loan entirely repaid within the last 12 months? ☐ No ☐ Yes E. Have you received gifts from the entity listed in Part 1 within the last 12 months valued at \$50 or more? No ☒ Yes ☐ - describe below. Description: _____	
2. Type of Statement (Check at least one box) ☒ Initial (for new funding) Date of initial funding: <u>04</u> / <u>19</u> / <u>17</u>				

Hellerstein, one can read, "In addition to his role in academia, ... has been a leader in the technology industry." [personal website] - reading all of these statements, as if the most natural thing in the world, and obvious beyond questioning, much feels like computer science is in a state closer to cave paintings and alchemy than a mature science. A principal criterion of any science still remains independence from outside influence : Religion in the past, replaced now by corporate, worldly influence - far more insidious.

Generally : Why would a computer scientist need to be a captain of industry, (as expressed differently above), and further a "technical advisory [to] a number of computing and Internet companies" [ibid.]? There is nothing 'natural' about any of it (obvious individual profit motives excluded). On the contrary, there is - based on principle and basic science history - a lot speaking against these various phenomena being favorable.

3. Universities as networking clubs for quid pro quo private sector roles

But, here again when university life gets in the way of profit it can be easily discarded :

"I was on leave from UC from July 2003 to 2006 to work for SAC Capital Management, a hedge fund based in New York and Connecticut." [El Ghaoui, Berkeley EECS page]

Do university departments, divisions in computer science serve as corporate networking events, club and circles? Berkeley CS faculty Peter Bartlett is another "ex" SAC Capital...

Similarly Armando Fox gives himself as a 'technical advisor' for Gradescope [CV], which just so happens to be Peter Abbeel's side-business (when he is not, officially at least formally, a researcher and public employee of the University of California...).

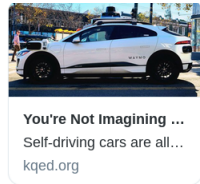
Borgs created Microsoft New England, Guruswami was employed there.

4. Public university resources used for starting companies

If a capitalist remote from education were told there was a place they could use (electricity, computing power, highly

intelligent workers submitted to stark Medieval hierarchies of power) at no cost, to start companies they would laugh. But, professors at universities, in particular CS professors have long known better : the number of start ups, private of course, started in this way is likely innumerable. Did the universities get any benefit from it? Did the public? Did the tax payers? Very unlikely in most if not all cases.

Bayen, a hustler academic, tied to Google and the defense sector, (the best of both worlds, public and private...) knows all about the best-kept-secret game of professor led start ups being himself experienced in that area :



Dec 4, 2021

Alexandre Bayen Retweeted

Alexandre Bayen @alexandrebayen

Replying to @BerkeleyITS and 2 others

Thank you @realchrisbeale for nice interview with #SteveShladover from @BerkeleyITS @Cal_Engineer on CAVs.

Dec 4, 2021

Alexandre Bayen @alexandrebayen

Replying to @BerkeleyITS and 2 others

Major research projects

- Principal Investigator, FLOW Jan. 2018 - Present
Budget to date: ~2M
Team: 10 (3 PhD, 5 MEng, 2 undergraduate students).
 FLOW leverages state-of-the-art deep RL libraries and the open-source microsimulator, SUMO, enabling the use of reinforcement learning to design and train controllers in traffic settings. It develops deep-RL algorithms applicable to mixed autonomy traffic, which will ultimately be deployed for both self-driving trucks and cars.
Project URL: <http://berkeleyflow.github.io/>
- Principal Investigator, NestSense, startup spin-off: SafelyYou Inc. Sep. 2014 - Present
Budget to date: ~500K (+~1.5M externally to the university)
Team: 8 (1 PhD, 5 MEng, 1 staff, 1 nurse, 1 occupational therapist).
 The goal of this project is to complete prototyping of the hardware ecosystem for in-home monitoring of patients with Alzheimer's disease (AD), to begin data collection with subjects, and to test novel algorithms based on this data. The hardware ecosystem consists of a combination of cameras, Android Wear smartwatches, Android phones, and bluetooth in-home sensors. Data collection will be achieved through a collaboration between clinicians at UCSF, UC Davis and a group of the EECS department at UC Berkeley.
Project URL: <http://safely-you.com/>

[Bayen website]

Computer scientists are very imaginative when it comes to describing that practice : "knowledge transfer", they call it grandiosely, as if a great service was hereby extended to human kind. Bayen, more the sporty type considering his past military experience, prefers "spin off"; at which point, one might almost be tempted to picture and imagine elegant ballet dancers....

5. Normalization of side ventures for the new age academic

Pieter Abbeel is a busy man. His Berkeley EECS profile page describes him as founder of many companies, (whose domain of application all seem more dangerous one than the other) :

- Gradescope (AI to help teachers with grading homework and exams),
- Covariant (AI for robotic automation of warehouses and factories)"

[if only the purpose of those robots was to free humans from labor instead of being used, as they are or are going to be, to drive down wages and create a bigger reserve army of formerly employed, now unemployed with no easily transferable skills...]

He is also described as "a frequently sought after speaker worldwide for C-suite sessions on AI future and strategy" and as someone whose "work is frequently featured in the press, including the New York Times, Wall Street Journal [etc. etc.]" [ibid.]

Dawn Song, ex. gratia..., is a busy bee :

Not only "She is the recipient of various awards including [long list] from IBM, Google and other major tech companies" [Berkeley EECS page] but : "She is also a serial entrepreneur and has been named on the Female Founder 100 List by Inc. [and other magazines]" [personal website]

Well : congratulations Madame Song! Hopefully your students and your peers, through your independent research, will benefit from all of these various extra curricular activities!

6. Corporate influence disguised as foundations/philanthropy

Laura Waller, ex. gratia, is representative of a new generation of brave new world academics :

"She is a Moore Foundation Data-Driven Investigator, Bakar fellow, Distinguished Graduate Student Mentoring awardee, NSF CAREER awardee, Chan-Zuckerberg Biohub Investigator, SPIE Early Career Achievement Awardee and Packard Fellow." [Berkeley EECS page]

But, all this talk of "foundations" and philanthropy and cutesy "Biohubs", do not change the fact that these are all awards and funding derived from Big Tech : 1. Moore is Intel fortune derived 2. "Chan Zukerberg", so called, is connected to Facebook's wealth 3. Packard (sometimes found as "Lucile [and husband] Packard") is HP derived...

7. Dangerous cocktail : high academic achievement and amoralism

Jitendra Malik, he informs us, was "*one of the top ten students in the Indian School Certificate Exam*" [CV], obtained a PhD at Stanford, became a full professor at Berkeley within ten years, and in 2015 – having accumulated all of that wisdom and experience and knowledge - joined Google.

The Professor Wawrzynek, a Carnegie Mellon man himself, consulted for Schlumberger (a company of the oil business)...

8. Misc

Shafi Goldwasser is also P. at Berkeley, where she directs the Simons Institute (NB due to using an older CV without checks we missed Goldwasser's latest capitalist development, role)

Hilfinger has a reputation as a tough teacher apparently leading to a joke among students emphasizing difficulty... (see also sites such as e.g. ratemyprofessors.com, as a source)

Already highlighted by us previously were the Univ. of California disclosure funding forms which we found while preparing a broader, less focused study on a similar subject.

Ref.

<https://www.eecs.berkeley.edu/Faculty/Lists/CS/faculty.html>
<https://vcresearch.berkeley.edu/faculty/> (second reference)
<https://simons.berkeley.edu/people/> (third reference - more restricted)

Pieter Abbeel	https://people.eecs.berkeley.edu/~pabbeel/ ; https://www2.eecs.berkeley.edu/Faculty/Hompages/abbeel.html
Krste Asanovic	https://people.eecs.berkeley.edu/~krste/
Babak Ayazifar	https://www2.eecs.berkeley.edu/Faculty/Hompages/ayazifar.html
Peter Bartlett	https://www.stat.berkeley.edu/~bartlett/bio.html
Alexandre Bayen	https://bayen.berkeley.edu/alex-bayen ; https://www2.eecs.berkeley.edu/Faculty/Hompages/bayen.html
Christian Borgs	https://www2.eecs.berkeley.edu/Faculty/Hompages/borgs.html
John F. Canny	https://www2.eecs.berkeley.edu/Faculty/Hompages/canny.html
Jennifer Chayes	www2.eecs.berkeley.edu/Faculty/Hompages/jchayes.html ; jenniferchayes.com/CV/chayes_cv.pdf [22 pp.]
James Demmel	https://www2.eecs.berkeley.edu/Faculty/Hompages/demmel.html
Alexei Efros	https://people.eecs.berkeley.edu/~efros/cv.html
Laurent El Ghaoui	https://www2.eecs.berkeley.edu/Faculty/Hompages/elghaoui.html ; people.eecs.berkeley.edu/~elghaoui/
Hany Farid	https://farid.berkeley.edu/downloads/cv.pdf [22 p.]
Armando Fox	https://www2.eecs.berkeley.edu/Faculty/Hompages/fox.html ; https://www.armandofox.com/contact/ [22 pp.]
Dan Garcia	eecs.berkeley.edu/Faculty/Hompages/garcia.html ; people.eecs.berkeley.edu/~ddgarcia/DanGarciaCV2021.pdf [34 pp.]
Ken Goldberg	https://www2.eecs.berkeley.edu/Faculty/Hompages/goldberg.html ; https://goldberg.berkeley.edu/cv.html
Shafi Goldwasser	https://dualitytech.com/about-us/ ; people.csail.mit.edu/shafi/(...)_CV_2014.pdf [20 pp.] ; simons.berkeley.edu/people/shafi/
Venkatesan Guruswami	https://people.eecs.berkeley.edu/~venkatg/CV/venkat-CV-web.pdf [25 pp.]
Marti Hearst	eecs.berkeley.edu/Faculty/Hompages/hearst.html ; people.ischool.berkeley.edu/~hearst/vitae.pdf [28 pp.]
Joseph Hellerstein	https://dsf.berkeley.edu/jmh/biography.html
Paul Hilfinger	https://people.eecs.berkeley.edu/~hilfinger/ ; eecs.berkeley.edu/Faculty/Hompages/hilfinger.html
Michael Jordon	eecs.berkeley.edu/Faculty/Hompages/jordan.html ; https://people.eecs.berkeley.edu/~jordan/jordan-bio.txt
Anthony D. Joseph	https://www2.eecs.berkeley.edu/Faculty/Hompages/joseph.html ; https://people.eecs.berkeley.edu/~adj/
Daniel Klein	https://www2.eecs.berkeley.edu/Faculty/Hompages/klein.html ; https://people.eecs.berkeley.edu/~klein/
John Kubiatawicz	eecs.berkeley.edu/Faculty/Hompages/kubiatawicz.html ; people.eecs.berkeley.edu/~kubitron/resume.pdf [8 pp.]
Jennifer Listgarten	http://www.jennifer.listgarten.com/
Michael Lustig	https://people.eecs.berkeley.edu/~mlustig/CV.html
Jitendra Malik	https://people.eecs.berkeley.edu/~malik/malik-cv-full.pdf
Jelani Nelson	eecs.berkeley.edu/Faculty/Hompages/minilek.html ; people.eecs.berkeley.edu/~minilek/cv.pdf [22 pp.]
James O'Brien	https://www2.eecs.berkeley.edu/Faculty/Hompages/obrien.html ; https://people.eecs.berkeley.edu/~job/
Eric Paulos	https://www2.eecs.berkeley.edu/Faculty/Hompages/paulos.html
Kristofer Pister	https://www2.eecs.berkeley.edu/Faculty/Hompages/pister.html ; https://people.eecs.berkeley.edu/~pister/
Kannan Ramchandran	https://people.eecs.berkeley.edu/~kannanr/
Satish Rao	https://people.eecs.berkeley.edu/~satishr/ ; https://simons.berkeley.edu/people/satish-rao
Sylvia Ratnasamy	https://people.eecs.berkeley.edu/~sylvia/ ; https://span.cs.berkeley.edu/people.html
Benjamin Recht	https://people.eecs.berkeley.edu/~brecht/recht-cv.pdf [18 pp.]
Jaijeet Roychowdhury	https://www2.eecs.berkeley.edu/Faculty/Hompages/jr.html ; https://jaijeet.github.io/jrpages/index.html
Stuart J. Russell	eecs.berkeley.edu/Faculty/Hompages/russell.html ; people.eecs.berkeley.edu/~russell/resume.html [36 pp.]
Anant Sahai	https://www2.eecs.berkeley.edu/Faculty/Hompages/sahai.html ; https://people.eecs.berkeley.edu/~sahai/
Koushik Sen	https://people.eecs.berkeley.edu/~ksen/sen-cv-2016.pdf [14 pp.]
Sanjit A. Seshia	https://www2.eecs.berkeley.edu/Faculty/Hompages/seshia.html ; https://people.eecs.berkeley.edu/~sseshia/CV/
Jonathan Shewchuk	https://www2.eecs.berkeley.edu/Faculty/Hompages/shewchuk.html ; https://people.eecs.berkeley.edu/~jrs/
Alistair Sinclair	https://www2.eecs.berkeley.edu/Faculty/Hompages/sinclair.html ; https://people.eecs.berkeley.edu/~sinclair/
Dawn Song	https://www2.eecs.berkeley.edu/Faculty/Hompages/song.html ; https://people.eecs.berkeley.edu/~dawnsong/
Yun Song	https://www2.eecs.berkeley.edu/Faculty/Hompages/yssong.html ; https://people.eecs.berkeley.edu/~yss/
Costas J. Spanos	https://www2.eecs.berkeley.edu/Faculty/Hompages/spanos.html
Ion Stoica	https://www2.eecs.berkeley.edu/Faculty/Hompages/stoica.html ; https://people.eecs.berkeley.edu/~istoica/
Bernd Sturmfels	https://www2.eecs.berkeley.edu/Faculty/Hompages/sturmfels.html ; https://math.berkeley.edu/~bernd/
Claire Tomlin	https://www2.eecs.berkeley.edu/Faculty/Hompages/tomlin.html ; https://people.eecs.berkeley.edu/~tomlin/
Umesh Vazirani	https://www2.eecs.berkeley.edu/Faculty/Hompages/vazirani.html ; https://people.eecs.berkeley.edu/~vazirani/
David A. Wagner	https://www2.eecs.berkeley.edu/Faculty/Hompages/wagner.html ; https://people.eecs.berkeley.edu/~daw/
Martin Wainwright	https://www2.eecs.berkeley.edu/Faculty/Hompages/wainwright.html ; https://people.eecs.berkeley.edu/~wainwright/
Laura Waller	https://www2.eecs.berkeley.edu/Faculty/Hompages/waller.html ; www.laurawaller.com/
John Wawrzynek	https://www2.eecs.berkeley.edu/Faculty/Hompages/wawrzynek.html ; https://people.eecs.berkeley.edu/~johnw/
Katherine A. Yelick	eecs.berkeley.edu/Faculty/Hompages/yelick.html ; https://people.eecs.berkeley.edu/~yelick/cv.pdf [40 pp.]
Bin Yu	https://www2.eecs.berkeley.edu/Faculty/Hompages/binyu.html ; https://binyu.stat.berkeley.edu/

Appendix

- Dan Garcia CV, Google 1 Million ('targeted diversity'), Lockheed Martin etc.
- Jennifer Chayes CV, pp. 1-2 : 20+ years at Microsoft, awards "Women to watch out for", "Women we admire", "Women Leader in STEM" etc.
- Jack Gallant disclosure form : Facebook (2017) "brain"
- Gallant's page at the 'Kavli Center of Ethics', so-called
- Peter Abbeel disclosure form : Google (2014, 2015) "robots"
- Shafi's venture into capitalism (Duality "about" section)s
- DeNero crunchbase page
- Bayen : consulting for Google, testifying in a case involving Google, "spinning off" public university research...
- Marti Hearst CV, pp. 2-3 : funding by Google, Amazon "ML"... - total she estimates to be "*more than \$3.5M*" [personal website])
- Katherine Yelick CV, pp. 37-40 : sources of funding

Daniel D. Garcia

320. Justin Hsia, Dan Garcia, and Swapneel Sheth. 2021. Student Teachers as Lead University Instructors (Birds of a Feather). In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education*. Association for Computing Machinery, New York, NY, USA, 1360.
DOI: <https://doi.org/10.1145/3408877.3439520>
321. Michael Ball, Dan Garcia, and Eric Arvai. 2021. Effective Video Production for Online and In-Person Courses (Workshop). In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education*. Association for Computing Machinery, New York, NY, USA, 1349.
DOI: <https://doi.org/10.1145/3408877.3432509>
322. Marnie Hill, Dan Garcia, Tiffany Barnes, Lauren Mock, Michael Ball, Amy Isvik, and Dave Bell. 2021. Teaching with the Beauty and Joy of Computing – AP CSP and More! (Workshop) In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education*. Association for Computing Machinery, New York, NY, USA, 1352. DOI: <https://doi.org/10.1145/3408877.3432507>
323. Daniel D. Garcia, Michael P. Rogers, and Andreas Stefik. 2021. Fun and Engaging Pre-CS1 Programming Languages (Panel). In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education*. Association for Computing Machinery, New York, NY, USA, 760–761.
DOI: <https://doi.org/10.1145/3408877.3432570>
324. Bojin Yao, Qitian Liao, Connor McMahon, and Daniel D. Garcia. 2021. Formal Categorization of Variants for Question Generators in Computer-Based Assessments (Poster). In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education*. Association for Computing Machinery, New York, NY, USA, 1244. DOI: <https://doi.org/10.1145/3408877.3439683>
325. Alexander C. Kafka, Daniel D. Garcia, Fred H. Cate, Ashok Goel, Marsha Lovett, and Morris Thomas. AI's impact on Teaching (Panel). *The Chronicle of Higher Education Virtual Panel*, Online, 2021-03-17.
326. Daniel D. Garcia. Achieving CSforALL with the Beauty and Joy of Computing (BJC) (Talk). *UNC Charlotte Spring 2021 Research Seminar Series*, Online, 2021-03-26.
327. Daniel D. Garcia. What is a “Core”, anyway? (Archived Video Lecture). *College Board AP CS Principles Daily Lecture Series*, Online, 2021-03-29.
328. Daniel D. Garcia. Great Ideas in Computer Science, aka The Beauty and Joy of Computing (BJC) (Keynote). *University of Rhode Island Explore Computer Science Research Workshop, aka URI ExploreCSR 2021*, Online, 2021-04-08.
329. Daniel D. Garcia. The Beauty and Joy of Binary Numbers (Talk). *UC Berkeley bridges Multicultural Resource Center Mock Lecture*, Online, 2021-04-20.
330. Daniel D. Garcia, Christine Alvarado, and Rob Parke. Effective Teaching Learning, Mentoring, and Curriculum Development (Panel), *Academic Career Workshop for Underrepresented Junior Faculty and Senior Graduate Students*, Online, 2021-06-14.

GRANTS AND GIFTS AWARDED

1. **UCB Course Improvement Grant, CS301 (2001), A half-semester TA, Dan Garcia PI**
Together with TA Andrew Begel, created lecture notes, online roster, videotaping, cgi-bin programs which allowed for automatic, online journal entry & editing for teaching reflection.
2. **UCB Committee on Teaching Instructional Minigrant (2004), \$500, Dan Garcia PI**
Purchased royalty-free music & sound effects (on CD-ROM and DVD-ROM) for computer graphics and animation pieces.
3. **HP Technology-for-Teaching Initiative (2004), \$17,500 and \$53,000 equipment, Dan Garcia PI**
Designed CS4 (*Intro to computing for engineers*) around a 20-laptop “HP mobile lab”. Created a novel lab space with small tables for 6-8 students to sit together and work on a problem concurrently, pair programming, in Java.
4. **UCB Townsend for the Humanities GROUP Award (2006), \$5,000, Dan Garcia & Greg Niemeyer co-PIs**
Together with Art Professor Greg Niemeyer and Pixar, designed novel “CNM190 : Advanced Digital Animation” course.
5. **UCB Committee on Teaching Instructional Minigrant (2008), \$3,600, Dan Garcia PI**
Funding to support “Computer Science Illustrated” project; labor and materials.

Daniel D. Garcia

6. **Bears Breaking Boundaries Contest Curricular Innovation (2009), \$1,000, Dan Garcia & Brian Harvey co-PIs**
Funding to support “CS10 : The Beauty and Joy of Computing” course development.
7. **Lockheed Martin Curricular Innovation (2009), \$50,000, Dan Garcia & Brian Harvey co-PIs**
Funding to support *CS10: The Beauty and Joy of Computing* course development.
8. **Apple, Inc. (2009), \$150,000 equipment, Dan Garcia PI**
Donation of 30 Mac Pro workstations + displays for EECS / CITRIS.
9. **Intel (2009), \$12,000, Dan Garcia PI**
Funding to support student development of an animation of their Routebricks™ project for their open house.
10. **CollegeBoard (Advanced Placement National Pilot, Phase I) (2010), \$35,000, Dan Garcia PI**
Funding to support *CS10: The Beauty and Joy of Computing* course development and High School teacher outreach.
11. **Google CS4HS (2010), \$20,000, Dan Garcia PI**
Funding to support “CS4HS Workshop”, a 2-day High School teacher outreach and professional development workshop.
12. **Google CS4HS (2011), \$15,000, Dan Garcia PI**
Funding to support “CS4HS Workshop”, a 2-day High School teacher outreach and professional development workshop.
13. **University of California (2011), \$70,000, Dan Garcia PI, Brian Harvey co-PI**
Funding to develop innovative *CSW10: The Beauty and Joy of Computing (BJC)*, the online companion to our CS10 class.
14. **NSF CE21: FRABJIOUS CS – Framing a Rigorous Approach to Beauty and Joy for Outreach to Under-represented Students in Computing at Scale (2011), \$1,000,000, Dan Garcia PI, Tiffany Barnes PI, Brian Harvey co-PI**
(1138596) Funding to support Professional Development activities for 100 high school teachers nationwide to learn BJC.
15. **NSF CE21: Advanced Placement Computer Science: Principles – Summer 2011 Professional Development for UC Berkeley Cluster of High School Teachers (2011), \$220,430, Dan Garcia PI, Brian Harvey co-PI**
(1143566) Funding to support PD activities for UC Berkeley cluster of high school teachers to learn BJC.
16. **Google CS4HS (2012), \$13,000, Dan Garcia PI**
Funding to support “CS4HS Workshop”, a 2-day High School teacher outreach and professional development workshop.
17. **NSF RAPID: Facilitating a CS-10K Community of Practice Testbed (2013), \$200,000, Dan Garcia PI**
(1250783) Funding to support CE21 PD facilitators to build and staff online community of practice.
18. **Google CS4HS (2013), \$13,000, Dan Garcia PI**
Funding to support “CS4HS Workshop”, a 2-day High School teacher outreach and professional development workshop.
19. **NSF CE21: FRABJIOUS CS – Framing a Rigorous Approach to Beauty and Joy for Outreach to Under-represented Students in Computing at Scale (2014), \$113,450 supplement, Dan Garcia PI**
(1443699) Funding to support Professional Development activities for 90 high school teachers nationwide to learn BJC.
20. **Google (2014), \$13,000, Dan Garcia PI**
Funding to support “CS4HS Workshop”, a 2-day High School teacher outreach and professional development workshop.
21. **NSF CE21: Principled Assessment of Computational Thinking (PACT) (2012), \$690,538, Dan Garcia Consultant**
Funding for SRI International (SRI) to design, develop, and validate assessments of computational thinking (CT) for the high school Exploring Computer Science (ECS) curriculum. My role was to serve as an educational consultant on the advisory board.

Daniel D. Garcia

22. **NSF CER: Import PCK: What 10K Novice Teachers Can Learn from Teachers with 10K Hours of Experience (2013), \$771,095, Dan Garcia Consultant**
Funding for Harvey Mudd College to document, validate, and promote CS pedagogical content knowledge. My role was to serve as an educational consultant on their advisory board.
23. **NSF BP: The Development, Implementation, and Evaluation of an AP Computer Science Preparatory Sequence for Underrepresented High School Students (2013), \$633,161, Dan Garcia Consultant**
Funding for Level Playing Field Institute to design and implement a comprehensive Advanced Placement computer science preparatory course sequence within its 3-year Summer Math and Science Honors Academy (SMASH) to prepare underrepresented high school students of color to pursue computer science degrees in higher education. My role was to serve as an educational consultant on the advisory board.
24. **NSF Computer Science in Secondary Schools (CS3): Studying Context, Enactment, and Impact (2014), \$3,128,654, Dan Garcia Consultant**
Funding for SRI International (SRI) to work in partnership with the ECS curriculum developers, teachers, and the nonprofit Code.org who are involved in the scaling of ECS. Study how variation in curricular implementation influences student learning and determines not only what works, but also for whom and under what circumstances. My role was to serve as an educational consultant on the advisory board.
25. **NSF STEM-CP BJC4NYC: Bringing the Beauty and Joy of Computing to the Largest School System in the US. (2014), \$7,874,876, Dan Garcia Senior Personnel**
Funding to develop curricular materials, based on the Beauty and Joy of Computing, for teaching CS Principles at the high school level using the Snap! programming language. Run in-person teacher-training programs each summer, and develop an online teacher development course. During the project, 100 high school teachers in New York City will be trained to teach this course, and early participants will also become teacher-trainers who will work with later participants. The teachers involved will become part of a Community of Practice that will continue to provide support for the teacher cohorts. My role was to (1) conduct summer professional development workshops; work w/EDC curriculum & Snap! software developers to review and suggest changes, (2) develop BJCx (with auto-grading features) for teachers as a small private online course (SPOC), (3) support BJC teachers online, and (4) serve as the liaison with the College Board as a member of the AP Computer Science Development Committee.
26. **NSF EDU: Teachers' Resources for Online Privacy Education (TROPE) (2014), \$319,962, Dan Garcia Senior Personnel**
Funding for ICSI to develop a Teacher's Kit that supports high school educators and undergraduate instructors in teaching fundamental principles and best practices for online behavior to protect privacy. My role was to collaboratively develop these materials.
27. **edX (2014), \$50,000, Dan Garcia PI**
Funding to support the development of BJCx, a year-long high school AP CS Principles course based on my UC Berkeley Beauty and Joy of Computing course.
28. **Google's 3X in 3 Years (2015), \$900,000, Dan Garcia grant co-author**
Funding to the department for 3-year project to grow undergraduate capacity and support diversity via our "Scaling Computer Science through Targeted Engagement" project. The three objectives are (1) Decrease the intro GPA gap between experienced and inexperienced students by 50%, (2) Increase *Software Engineering* and *UI Design* enrollment by 500 total students/year, and (3) Increase the number of women and underrepresented minority CS majors by a factor of 3.
29. **Google CS4HS (2016), \$34,460, Dan Garcia PI**
Funding to support "CSP4SFBayArea (aka CS4HS) Workshop", a 2-day High School teacher outreach and professional development workshop.
30. **NSF RAPID SInRGI: A Shared, Integrated Resource for "Global Impact" (2016), \$200,000, Dan Garcia Senior Personnel**
Curate and develop teaching resources for AP Computer Science Principle's "Global Impact" learning objectives. My role: Co-author proposal, and as representative for the Beauty and Joy of Computing (BJC), highlight resources for Global Impact Big Idea – contribute materials, and work together with representatives from other curriculum providers to identify the best combination of approaches, and to create any new materials that are needed to fill gaps.

Daniel D. Garcia

31. **NSF RAPID: Teaching Security in CSP (2016), \$200,000, Dan Garcia Senior Personnel**
Develop security-related education materials for the community that is developing around the AP Computer Science Principles (CSP) course. My role: Co-author proposal, and co-develop resources that can be re-used by any provider offering the AP CS Principles curriculum.
32. **Hopper-Dean Foundation Computer Science Diversity Programs Fund (2016), \$200,000, Dan Garcia PI**
The foundation granted \$1M to the department to fund diversity initiatives; my \$200k was used to support our online course BJCx, develop auto-grading exercises, software development and TA staff.
33. **NSF ENGAGE: A Game-based Curricular Strategy for Infusing Computational Thinking into Middle School Science (2016), \$2,498,862, Dan Garcia Consultant**
Funding for NC State to study how deep, mastery-oriented gameplay can develop core computational thinking practices in middle school life science. My role: educational consultant for their advisory board.
34. **NSF CSforAll: EAGER: NetsBlox: Visual Programming Environment for Teaching Distributed Computing Concepts (2016), \$299,798, Dan Garcia Consultant**
Funding for Vanderbilt University to build distributed computing activities for introductory computer science using Netsblox. My role: educational consultant to help build curricular materials.
35. **InfoSys Summer 2016 BJC PD Grant (2016), \$184,500, Dan Garcia Senior Personnel**
Funding to support summer professional development for teachers learning the BJC curriculum.
36. **InfoSys Summer 2017 BJC PD Grant (2017), \$311,975, Dan Garcia Senior Personnel**
Funding to support summer professional development for teachers learning the BJC curriculum.
37. **UCB Student Technology Fund (2017), \$5,000, Dan Garcia PI**
Funding to support hardware for CS10 open-ended final projects: computer-controlled sewing machines, replacement i>clickers, Leap Motion sensors, and Finch Robots.
38. **InfoSys Summer 2018 BJC PD Grant (2018), \$8,000, Dan Garcia Senior Personnel**
Funding to support summer professional development for teachers learning the BJC curriculum.
39. **NSF EHR STEM+C, CSforALL: Building a Computational Thinking Foundation in Upper Elementary Science with Narrative-Centered Maker Environments (2019), \$1,599,339, Dan Garcia Consultant**
Funding to support design, development, and investigation of InfuseCS, an interactive learning environment for computational thinking that features maker-based digital storytelling and problem-based learning.
40. **NSF ITEST, Beyond CS Principles: Engaging Female High School Students in New Frontiers (2019), \$595,380, Dan Garcia Consultant**
Funding to support design, development, and investigation of Cybersecurity, Internet-of-Things, and Machine Learning curriculum modules based on NetsBlox, an extension of the Snap! language.
41. **Hopper-Dean Foundation, Accelerating CS Diversity Programs Fund (2019), \$600,000, Dan Garcia PI**
The foundation granted \$3M to the department to fund diversity initiatives; my \$600k was used to support our middle school curriculum, Spanish translation, software development and staff.
42. **UC Berkeley College of Engineering, Course Adaptation and Remote Delivery, Learning, and Assessment: Developing Question Generators and MOOC-like videos+quizzes for remote CS61C, CS10, and CS169A (2020), \$60,000, Dan Garcia co-PI**
Funding to build Question Generators and MOOC-like videos and quizzes for CS61C and CS10 for remote delivery, learning, and assessment.
43. **California Governor's Office of Planning and Research, Reorienting Formative and Summative Assessment Towards Mastery Learning for Learner Success, Student Equity, and Institutional Resilience (2020), \$650,000, Dan Garcia co-PI**
Funding to adapt and adopt the University Illinois at Urbana-Champaign's PrairieLearn platform for mastery learning in computer-based assessments, and study impact. UCB Award ID: 049488-001
44. **NSF EAGER, Student Mission Control for the International Space Station (2021), \$298,944, Dan Garcia co-PI**
Funding to support development of an API, website, "Student Mission Control" interface, and curriculum modules centered on the data streaming out of the International Space Station. NSF Award #2027260
45. **Apple Inc., Export of CS61C for HBCUs (2021), \$50,000, Dan Garcia co-PI**
Funding to support the "packaging" of CS61C for export and adoption by faculty at Historically Black Colleges and Universities (HBCUs), including a bootcamp for HBCU instructors.

CURRICULUM VITAE

Home Address:

████████████████████
Boston, MA ██████████
website: jenniferchayes.com
e-mail: jennifer@jenniferchayes.com

Office Address:

Microsoft Research New England
1 Memorial Drive
Cambridge, MA 02142
e-mail: jchayes@microsoft.com

Education:

1979 B.A., Physics and Biology, Wesleyan University
1983 Ph.D., Mathematical Physics, Princeton University

Positions:

1983–1985 Postdoctoral Fellow in Mathematical Physics, Departments of
Mathematics and Physics, Harvard University
1985–1987 Postdoctoral Fellow, Laboratory of Atomic and Solid State
Physics and Mathematical Sciences Institute, Cornell University
1987–1990 Associate Professor (with tenure), Department of Mathematics, UCLA
1990–2001 Professor, Department of Mathematics, UCLA
1997–2005 Senior Researcher and Head, Theory Group, Microsoft Research
1997–2008 Affiliate Professor, Dept. of Physics, U. Washington
1999–2008 Affiliate Professor, Dept. of Mathematics, U. Washington
2005–2008 Principal Researcher and Research Area Manager for Mathematics,
Theoretical Computer Science and Cryptography, Microsoft Research
2008– Managing Director, Microsoft Research New England
2010–2018 Distinguished Scientist, Microsoft Corporation
2012– Managing Director, Microsoft Research New York City
2018– Technical Fellow, Microsoft Corporation
2018– Managing Director, Microsoft Research Montreal

Long-Term Visiting Positions:

1994-95, 1997 Member, Institute for Advanced Study, Princeton
1995, May–July ETH, Zürich
1996, Sept.–Dec. AT&T Research, New Jersey

Awards and Honors:

1977	Johnston Prize in Physics, Wesleyan University
1979	Graham Prize in Natural Sciences & Mathematics, Wesleyan University
1979	Graduated 1 st in Class, Summa Cum Laude, Wesleyan University
1984	National Science Foundation Postdoctoral Research Fellowship
1989	Alfred P. Sloan Foundation Research Fellowship
1993	Mortar Board Honor Society Teaching Award, UCLA
1994	Distinguished Teaching Award, Department of Mathematics, UCLA
2003	National Associate, The National Academies
2006	Fellow, American Association for the Advancement of Science
2008	Fellow, Fields Institute
2011	Fellow, Association of Computing Machinery
2011	Leadership Award, Women Entrepreneurs in Science and Technology
2011	Leading Women Award, Girl Scouts of Eastern Massachusetts
2012	Women to Watch Award, Boston Business Journal
2012	Women of Vision Leadership Award, Anita Borg Institute
2012	Women Leader in STEM, STEM Connector
2012	Diversity Champion, Boston Globe
2013	Fellow (Inaugural Class), American Mathematical Society
2013	Top Woman Engineer in Tech, Business Insider
2013	Woman We Admire, Ad Club of Boston
2013	Distinguished Alumnus Award, Wesleyan University
2013	Catalyst Award, Science Club for Girls
2014	Member, American Academy of Arts and Sciences
2015	John von Neumann Lecture Prize, Society for Industrial and Applied Mathematics (SIAM) (highest honor of SIAM)
2016	Honorary Doctorate, Leiden University
2016	Information Week's Twelve Inspiring Women in Data Science
2016	GirlStart 2016 Women in STEM Award
2017	Wheaton Inaugural Women in STEM Award
2018	Massachusetts Technical Leadership Council Distinguished Leader Award
2019	Member, National Academy of Sciences

STATEMENT OF ECONOMIC INTERESTS
FOR
PRINCIPAL INVESTIGATORS
A Public Document

Date Received
Campus Use Only

Please type or print in ink.

Campus _____

ID No _____

NAME (LAST)	(FIRST)	(MIDDLE)	TELEPHONE NUMBER
Gallant	Jack		(510) 361-9750
ACADEMIC UNIT OR DEPARTMENT		MAIL CODE	E-MAIL ADDRESS
Helen Wills Neuroscience Institute		3192	gallant@berkeley.edu
TITLE OF RESEARCH PROJECT			
Decoding imagined speech from brain activity			

1. Information Regarding Funding Entity

(Use a separate Form 700-U for each funding entity.)

Name of Entity:

Facebook

Address of Entity:

1 Hacker Way, Menlo Park, CA 94025

Principal Business of Entity:

Technology / Internet

Amount of Funding: \$ 392,000

Estimated ☐ Actual ☐

2. Type of Statement (Check at least one box)

☒ Initial (for new funding)

Date of initial funding: 04 / 19 / 17

☐ Interim (for renewed funding)

Funding was renewed on: ____ / ____ / ____

3. Filer Information

A. Are you a director, officer, partner, trustee, consultant, employee, or do you hold a position of management in the entity listed in Part 1? No ☒ Yes ☐

Title: _____

B. Do you, your spouse or registered domestic partner, or your dependent children have an investment of \$2,000 or more in the entity listed in Part 1 above?

No ☐ Yes ☐ - value is:

☐ \$2,000 - \$10,000

☒ \$10,001 - \$100,000

☐ \$100,001 - \$1,000,000

☐ Exceeds \$1,000,000

Date Disposed: ____ / ____ / ____, if applicable

C. Have you received income of \$500 or more from the entity listed in Part 1 during the reporting period?

No ☒ Yes ☐ - amount is:

☐ \$500 - \$1,000

☐ \$1,001 - \$10,000

☐ \$10,001 - \$100,000

☐ Exceeds \$100,000

Was this income received through your spouse or registered domestic partner? ☐ No ☐ Yes

3. Filer Information - Cont.

D. Have you received loans from the entity in Part 1 for which the balance exceeded \$500 during the reporting period? No ☒ Yes ☐ - highest balance

☐ \$500 - \$1,000

☐ \$1,001 - \$10,000

☐ \$10,001 - \$100,000

☐ Exceeded \$100,000

If you checked "yes," was the loan

☐ Secured ☐ Unsecured Interest rate _____%

Was the loan entirely repaid within the last 12 months?

☐ No ☐ Yes

E. Have you received gifts from the entity listed in Part 1 within the last 12 months valued at \$50 or more?

No ☒ Yes ☐ - describe below.

Description: _____

Value: \$ _____ Date Received: ____ / ____ / ____

F. Has the entity in Part 1 paid for your travel during the reporting period? No ☒ Yes ☐ - describe below.

Type of Payment: (check one) ☐ Gift ☐ Income

Amt: \$ _____ date(s): ____ / ____ / ____
(if gift)

Description and, if Gift, Travel Destination: _____

4. Verification

I have used all reasonable diligence in preparing this statement. I have reviewed this statement and to the best of my knowledge the information contained herein and in any attached schedules is true and complete. I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

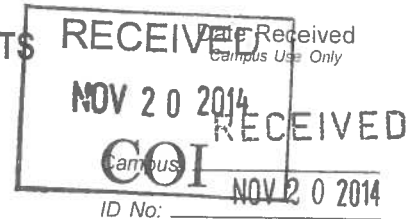
Date Signed 18 April 2017

(month, day, year)

Signature _____

(File the originally signed statement with your university.)

STATEMENT OF ECONOMIC INTERESTS
FOR
PRINCIPAL INVESTIGATORS
A Public Document



Please type or print in ink.

31754

NAME (LAST)	(FIRST)	(MIDDLE)	TELEPHONE NUMBER
ABBEEL	PIETER		510.642.7034
ACADEMIC UNIT OR DEPARTMENT		MAIL CODE	E-MAIL ADDRESS
EH1CS - Comp Sci Div Operations		1776	pabbeel@cs.berkeley.edu
TITLE OF RESEARCH PROJECT			
Google Faculty Research Gift			

1. Information Regarding Funding Entity

(Use a separate Form 700-U for each funding entity.)

Name of Entity:

Google Inc

Address of Entity:

1600 Amphitheatre Parkway, Mountain View, CA 9403

Principal Business of Entity:

Internet-related services and products

Amount of Funding: \$ 90,879

Estimated ☐ Actual ☒

2. Type of Statement (Check at least one box)

☒ Initial (for new funding)

Date of initial funding: 10 / 09 / 14

☐ Interim (for renewed funding)

Funding was renewed on: ____ / ____ / ____

3. Filer Information

A. Are you a director, officer, partner, trustee, consultant, employee, or do you hold a position of management in the entity listed in Part 1? No ☒ Yes ☐

Title: _____

B. Do you, your spouse or registered domestic partner, or your dependent children have an investment of \$2,000 or more in the entity listed in Part 1 above?

No ☒ Yes ☒ - value is:

☐ \$2,000 - \$10,000 ☐ \$10,001 - \$100,000
☒ \$100,001 - \$1,000,000 ☐ Exceeds \$1,000,000

Date Disposed: ____ / ____ / ____, if applicable

C. Have you received income of \$500 or more from the entity listed in Part 1 during the reporting period? No ☒ Yes ☐ - amount is:

☐ \$500 - \$1,000 ☐ \$1,001 - \$10,000
☐ \$10,001 - \$100,000 ☐ Exceeds \$100,000

Was this income received through your spouse or registered domestic partner? ☐ No ☐ Yes

3. Filer Information - Cont.

D. Have you received loans from the entity in Part 1 for which the balance exceeded \$500 during the reporting period? No ☒ Yes ☐ - highest balance:

☐ \$500 - \$1,000 ☐ \$1,001 - \$10,000
☐ \$10,001 - \$100,000 ☐ Exceeded \$100,000

If you checked "yes," was the loan:

☐ Secured ☐ Unsecured Interest rate: ____ %

Was the loan entirely repaid within the last 12 months?

☐ No ☐ Yes

E. Have you received gifts from the entity listed in Part 1 within the last 12 months valued at \$50 or more? No ☒ Yes ☐ - describe below.

Description: _____

Value: \$ _____ Date Received: ____ / ____ / ____

F. Has the entity in Part 1 paid for your travel during the reporting period? No ☒ Yes ☐ - describe below.

Type of Payment: (check one) ☐ Gift ☐ Income

Amt: \$ _____ date(s): ____ / ____ / ____
(if applicable)

Description: _____

4. Verification

I have used all reasonable diligence in preparing this statement. I have reviewed this statement and to the best of my knowledge the information contained herein and in any attached schedules is true and complete. I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date Signed 10/20/2014
(month, day, year)

Signature *PABBEEL*
(File the originally signed statement with your university.)

**CALIFORNIA
FORM**

FAIR POLITICAL PRACTICES COMMISSION

700-U

**STATEMENT OF ECONOMIC INTERESTS
FOR
PRINCIPAL INVESTIGATORS**
A Public Document

LAO (Philip Hop 2547)

Date Received
Campus Use Only

RECEIVED

AUG 21 2015

Campus:

AUG 18 2015

COI

ID No:

Please type or print in ink.

32245

NAME (LAST)	(FIRST)	(MIDDLE)	TELEPHONE NUMBER
ABBEEL	PIETER		(510) 642-7034
ACADEMIC UNIT OR DEPARTMENT	MAIL CODE	E-MAIL ADDRESS	
EECS	1776	pabbeel@berkeley.edu	
TITLE OF RESEARCH PROJECT			
End-to-end robot skills learning			

1. Information Regarding Funding Entity

(Use a separate Form 700-U for each funding entity.)

Name of Entity:

GOOGLE

Address of Entity:

600 Amphitheatre Parkway, Mountain View, CA 9403

Principal Business of Entity:

Internet-related services and products

Amount of Funding: \$ 750,000

Estimated ☒

Actual ☐

2. Type of Statement (Check at least one box)

☒ Initial (for new funding)

Date of initial funding: 09 / 01 / 15

☐ Interim (for renewed funding)

Funding was renewed on: / /

3. Filer Information

A. Are you a director, officer, partner, trustee, consultant, employee, or do you hold a position of management in the entity listed in Part 1? No ☒ Yes ☐

Title: _____

B. Do you, your spouse or registered domestic partner, or your dependent children have an investment of \$2,000 or more in the entity listed in Part 1 above?

No ☐ Yes ☒ - value is:

☐ \$2,000 - \$10,000

☐ \$10,001 - \$100,000

☒ \$100,001 - \$1,000,000

☐ Exceeds \$1,000,000

Date Disposed: / /, if applicable

C. Have you received income of \$500 or more from the entity listed in Part 1 during the reporting period?

No ☒ Yes ☐ - amount is:

☐ \$500 - \$1,000

☐ \$1,001 - \$10,000

☐ \$10,001 - \$100,000

☐ Exceeds \$100,000

Was this income received through your spouse or registered domestic partner? ☐ No ☐ Yes

3. Filer Information - Cont.

D. Have you received loans from the entity in Part 1 for which the balance exceeded \$500 during the reporting period? No ☒ Yes ☐ - highest balance:

☐ \$500 - \$1,000

☐ \$1,001 - \$10,000

☐ \$10,001 - \$100,000

☐ Exceeded \$100,000

If you checked "yes," was the loan:

☐ Secured

☐ Unsecured

Interest rate: %

Was the loan entirely repaid within the last 12 months?

☐ No

☐ Yes

E. Have you received gifts from the entity listed in Part 1 within the last 12 months valued at \$50 or more?

No ☒

Yes ☐ - describe below.

Description: _____

Value: \$ _____ Date Received: / /

F. Has the entity in Part 1 paid for your travel during the reporting period? No ☒ Yes ☐ - describe below.

Type of Payment: (check one) ☐ Gift ☐ Income

Amt: \$ _____ date(s): / / (If gift)

Description: _____

4. Verification

I have used all reasonable diligence in preparing this statement. I have reviewed this statement and to the best of my knowledge the information contained herein and in any attached schedules is true and complete. I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date Signed

8 / 12 / 2015

(month, day, year)

Signature

(File the originally signed statement with your university)

2014 Excellence in Teaching Award (School of Information)
2013 Named a Fellow of the ACM
2002 Excellence in Teaching Award (School of Information)
2002 IBM Faculty Fellowship (\$40,000)
2000 NSF Career Grant, Principal Investigator (\$300,000)
2000 Hellman Faculty Fund award (\$30,000)
1999 Excellence in Teaching Award (School of Information)
1998 Okawa Foundation Fellow (\$10,000)

Grants and Research Gifts

2021 Gift from AI2 (\$50,000)
2021 Grant from Google (\$34,000)
2020 Grant from Microsoft (\$115,000)
2019 Gift from AI2 (additional) (\$50,000)
2019 Grant from Sloan (\$280,000)
2019 Gift from AI2 (\$40,000)
2019 Grant from Bloomberg (\$70,000)
2019 Grant from Amazon ML Research (\$75,000)
2018 Grant from Amazon ML Research (\$150,000)
2018 Grant from CLTC (co-PI) (\$98,000)
2017 Grant from CZI (co-PI) (\$59,000)
2014 Gift from Tableau (\$50,000)
2013 Research Grant from Google (\$200,000)
2013 MOOCLab Grant, UC Berkeley (co-PI) (\$75,000)
2012 NEH Grant, Principle Investigator (\$217,000)
2007 Research Grant from Google (\$50,000)
2006 NSF Grant, Principle Investigator (\$580,000)
2006 IBM Innovation Award (\$12,000)
2006 Gift from FXPal (\$10,000)
2004 Gift from Genentech (\$40,000)
2003 NSF Grant, Principle Investigator (\$840,000)
2003 Gift from Genentech (\$20,000)
2003 Gift from Oracle Corporation (\$30,000)
2002 Gift from Genentech (\$20,000)
2002 Gift from Oracle Corp. (\$20,000)
2001 ARDA AQUAINT Award, Principal Investigator (\$1,000,000)

2000 ARDA Award, Principal Investigator (\$200,000)
2000 Gift from Microsoft Research (\$30,000)
2000 Gift from Oracle Corporation (\$15,000)
1998 Sun Academic Equipment Grant (valued at \$50,000)
1998 Gift from Adobe Systems (\$7,000)
1994 NSF support AAAI for Fall Symposium on Improving Instruction of Artificial Intelligence (\$9,800)
1989 California Legislative Grant

Program Chair and Organizational Activities

Nominating Committee, Association for Computational Linguistics, 2019-2021
Nominating Committee, SIGIR Academy, 2021-present.
President, Association for Computational Linguistics, 2018.
Executive Committee Officer, Association for Computational Linguistics, 2016-2019.
Nominating Committee, Karen Sparck-Jones Award, 2019, 2017.
Co-organizer, Bay Area Learning Analytics Conference, 2018.
Co-organizer, IEEE Infoviz workshop on Pedagogy in Information Visualization, 2017 and 2016.
Program Co-Chair, First Annual ACM Conference on Learning at Scale, 2014.
Steering Committee, ACM Learning at Scale Conference, 2014-2017.
Steering Committee, ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR), 2014-2016.
Steering Committee, AAAI International Conference on Weblogs and Social Media (ICWSM), 2013-2015.
General Chair, Fourth AAAI International Conference on Weblogs and Social Media (ICWSM), 2010.
Co-organizer, Workshop on Search and Social Media, WSDM Workshop, 2010.
Co-organizer, Workshop on Search and Social Media, SIGIR Workshop, 2009.
Program Co-Chair, First Annual HLT/NAACL, 2003.
Program Co-Chair, ACM SIGIR, 1999.
Co-Organizer and Program Co-chair of the 1996 AAAI Spring Symposium on Machine Learning in Information Access.
Organizer and Program Chair of the 1994 AAAI Fall Symposium on Improving Instruction of Artificial Intelligence.

Editorial Positions

Associate Editor, *ACM Transactions on Computer-Human Interaction* (TOCHI), 2004-2020.
Associate Editor, *ACM Transactions on the Web* (TWeb), 2006-2012.
Associate Editor, *ACM Transactions on Information Systems* (TOIS), 1997-2006.
Editorial Board, *Computational Linguistics*, 1999-2002.
Editorial Board and Feature Editor, *IEEE Intelligent Systems*.

Research Funding

Project: BINOCULARS (Berkeley Institute for Programming Support for Irregular Applications)

Investigators: Katherine Yelick (PI), Costin Iancu (co-PI)

Source of Support: Department of Defense

Location for Project: LBNL

Duration: June 1, 2020 – September 30, 2022

Total Funding: \$1,400,000

Project: GASNet

Investigators: Katherine Yelick (PI), Paul Hargrove (co-PI)

Source of Support: Department of Defense

Location for Project: LBNL

Duration: February 1, 2010 – September 30, 2022

Total Funding: \$800,000

Project: Exascale Solutions to Microbiome Analysis (ExaBiome)

Investigators: Katherine Yelick (PI), Leonid Oliker (co-PI), Patrick Chain (LANL PI)

Source of Support: DOE (through ORNL)

Location of Project: LBNL

Duration: October 2016 – June 2023

Total Funding: \$13,742,500,000 (est)

Project: SPX Collaborator Research: Global Address Programming with Accelerators

Investigators: John Owens (UC Davis, Coordinating PI), Katherine Yelick (UCB PI), Aydın Buluç (UCB Co-PI)

Source: National Science Foundation

Duration: August 1, 2017 – July 30, 2022

Total UCB Funding: \$465,000

Recent Prior Projects:

Project: BINOCULARS (Berkeley Institute for Programming Support for Irregular Applications)

Investigators: Katherine Yelick (PI), Costin Iancu (co-PI)

Source of Support: Department of Defense

Location for Project: LBNL

Duration: February 15, 2019 - June 30, 2020

Total Funding: \$1,000,000

Project: GASNet

Investigators: Katherine Yelick (PI), Paul Hargrove (co-PI)

Source of Support: Department of Defense

Location for Project: LBNL

Duration: February 12, 2019 – January 31, 2020

Total Funding: \$200,000

Project: Feature discovery through large-scale unsupervised deep learning: a pilot study for suicide prevention using MVP data collection

Investigators: Katherine Yelick (PI), Silvia Crivelli and J. Ben Brown (Senior Personnel)

Source of Support: Department of Energy via Brookhaven National Laboratory

Location for Project: LBNL
Duration: January 26, 2018 – December 31, 2018
Total Funding: \$63,000

Project: BINOCULARS
Investigators: Katherine Yelick (PI), Costin Iancu (co-PI)
Source of Support: Department of Defense
Location for Project: LBNL
Duration: December 1, 2017 - October 31, 2018
Total Funding: \$1,000,000

Project: GASNet
Investigators: Katherine Yelick (PI), Paul Hargrove (co-PI)
Source of Support: Department of Defense
Location for Project: LBNL
Duration: December 1, 2017 - October 31, 2018
Total Funding: \$400,000

Project: BINOCULARS
Investigators: Katherine Yelick (PI), Costin Iancu (co-PI)
Source of Support: Department of Defense
Location for Project: LBNL
Duration: December 22, 2016 - October 31 2017
Total Funding: \$500,000

Project: BINOCULARS + AMD
Investigators: Katherine Yelick (PI), Jonathan Carter (co-PI)
Source of Support: Department of Defense
Location for Project: LBNL
Duration: July 18, 2016 – September 30, 2017
Total Funding: \$2,000,000 (including subcontracts)

Project: BINOCULARS
Investigators: Katherine Yelick (PI), Costin Iancu (co-PI)
Source of Support: Department of Defense
Location for Project: LBNL
Duration: November 2015 - October 31 2016
Total Funding: \$1,750,000 (including subcontracts)

Project: DEGAS: Dynamic Exascale Global Address Space programming environments
Investigators: K. Yelick (coordinating PI, LBNL)
Source: Department of Energy
Amount: \$8,900,500 (at LBNL)
Location of Project: LBNL
Period: September 1, 2012 – August 31, 2016

Project: BINOCULARS
Investigators: Katherine Yelick (PI), Costin Iancu (co-PI)
Source of Support: Department of Defense
Location for Project: LBNL
Duration: October 2014 - December 31, 2015

Total Funding: \$1,166,664 (including subcontracts)

Project: BINOCULARS

Investigators: Katherine Yelick (PI), Costin Iancu (co-PI)

Source of Support: Department of Defense

Location for Project: LBNL

Duration: March 2013-February 2014

Total Funding: \$1,529,158 (including subcontracts)

Project: BINOCULARS

Investigators: K. Yelick (PI), C. Iancu (Co-PI)

Source: Department of Defense

Amount: \$475,000 (including subcontracts)

Location of Project: LBNL

Period: September 1, 2012 – March 31, 2013

Project: BINOCULARS

Investigators: K. Yelick (PI), C. Iancu (Co-PI)

Source: Department of Defense

Amount: \$1,721,900 (including subcontracts)

Location of Project: LBNL

Period: April 1, 2011 – September 30, 2012

Project: Center for Programming Models for Scalable Parallel Computing

Investigators: Katherine Yelick (PI)

Source of Support: Department of Energy

Location of Project: U.C. Berkeley

Duration: 9/15/06-9/14/2012

Total Funding: \$2,116,480

Project: Center for Scalable-Performance Application Development Software

Investigators: Katherine Yelick (UCB PI), John Mellor-Crummey (Coordinating PI at Rice)

Source of Support: DOE

Location of Project: U.C. Berkeley

Duration: 11/15/2006-11/14/2012

Total Funding: \$675,000

Project: CRI:IAD: Development of a Research Infrastructure for the Multithreaded Computing Community Using the Cray Eldorado Platform

Investigators: Katherine Yelick (UCB PI), Jay Brockman (Lead PI at Notre Dame)

Source of Support: National Science Foundation

Location of Project: U.C. Berkeley

Duration: 8/1/2007-7/1/2013

Total Funding: \$50,000

Project: Parallel Laboratory

Investigators: David Patterson (PI), Ras Bodik (co-PI), James Demmel (co-PI), Kurt Keutzer (co-PI), Koushik Sen (co-PI), Kathy Yelick (co-PI), Krste Asanovic (co-PI)

Source of Support: Intel and Microsoft

Location of Project: UC. Berkeley

Duration: 12/31/07-12/30/12

Total Funding: \$6,000,000

Project: Parallel Laboratory

Investigators: David Patterson (PI), Ras Bodik (co-PI), James Demmel (co-PI), Kurt Keutzer (co-PI), Koushik Sen (co-PI), Kathy Yelick (co-PI), Krste Asanovic (co-PI)

Source of Support: UC Discovery Funds

Location of Project: UC. Berkeley

Duration: 5/01/08-4/30/12

Total Funding: \$2,125,000

Project: Unified Parallel C

Investigators: K. Yelick (PI)

Source: Department of Defense

Amount: \$1,343,000 (including subcontracts)

Location of Project: LBNL

Period: April 1, 2010 – September 30, 2011

Project: SDCI: IPM – a Performance Monitoring Environment for Petascale HPC

Investigators: Katherine Yelick (UCB PI), Allan Snaveley (Lead PI at UCSD)

Source of Support: National Science Foundation

Location of Project: U.C. Berkeley

Duration: 10/01/2007-9/30/2011

Total funding: \$753,357

Project: PetaApps: New Coupling Strategies and Capabilities for Petascale Climate Modeling

Investigators: William Collins (UCB PI), Katherine Yelick (co-PI), Jim Kinter (Coordinating PI, COLA), and others

Source of Support: NSF

Location of Project: UC Berkeley

Duration: 3/01/2008-2/28/12

Total funding: \$391,130

Project: Unified Parallel C on Scalable Shared Memory

Investigators: K. Yelick (PI)

Source: Department of Defense

Amount: \$1,002,663 (including subcontracts)

Location of Project: LBNL

Period: July 28, 2010 – September 30, 2011

Project: Applications and Runtime Systems Using Fast One-Sided Communication

Investigators: Katherine Yelick

Source of Support: DOE

Annual Amount: \$530,000

Location of Project: LBNL

Period: October 1, 2010 – September 30, 2011



Dr. Alon Kaufman
Co-founder and CEO

Dr. Kaufman has 15 years of experience in the hi-tech arena, commercializing data-science technologies, leading industrial research and corporate innovation teams. Prior to founding Duality he served as RSA's global director of Data Science & Innovation.



Ms. Rina Shainski
Co-founder and Chairwoman

Prior to co-founding Duality, Rina was a general partner of Carmel Ventures (now Viola VC) since 2000, leading investments and serving on the boards of hi-tech companies in a variety of IT areas, including mobility, cyber and digital media.



Prof. Shafi Goldwasser
Co-founder and Chief Scientist

Prof. Goldwasser is the inventor of several revolutionary cryptographic technologies, including probabilistic encryption, multi-party secure protocols and pseudo-random functions. She was awarded the ACM Turing Award in 2012 for "for transformative work."



Dr. Kurt Rohloff
Co-founder and CTO

Dr. Rohloff is a co-founder of the PALISADE open-source homomorphic encryption software library and has led the defense industry consortium developing this leading open-source library. He is a co-founder and steering committee member of the HomomorphicEncryption.org industry consortium. He is the recipient of a DARPA



Prof. Vinod Vaikuntanathan
Co-founder and Chief Cryptographer

Prof. Vaikuntanathan is an associate professor of electrical engineering and computer science at MIT. Vinod is the co-inventor of most modern fully homomorphic encryption systems and many other lattice-based (post-quantum secure) cryptographic primitives.

[Duality]

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[Home](#) » [Jack Gallant](#)

Jack Gallant

TITLE: Professor

AFFILIATION: Department of Psychology

BACKGROUND:

Jack Gallant is Chancellor's Professor and Class of 1940 Chair at UC Berkeley, and co-Director of the Henry J. Wheeler Brain Imaging Center. His research program focuses on computational modeling and high-dimensional, high-resolution imaging of the human brain under naturalistic conditions. As part of that work, his lab has created the most accurate brain decoding algorithms available today. He is actively involved in neuroethics and the potential implications of future neurotechnology for privacy, agency and the sense of self. He regularly gives presentations on implications of neuroscience and neurotechnology in the law to the National Academy of Sciences and to Circuit Courts. Jack Gallant is affiliated with the departments of Psychology and Electrical Engineering and Computer Science, along with the programs in Bioengineering, Biophysics, Neuroscience and Vision Science. He received his Ph.D. from Yale University and did postdoctoral work at the California Institute of Technology and Washington University Medical School.

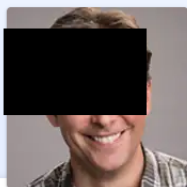
ROLE: [Steering Committee](#)



CONTACT

gallant@berkeley.edu

[Website](#)



PERSON

John DeNero

Summary

Overview

Number of Founded Organizations
1

CB Rank (Person)
117,746

Primary Job Title
Co-Founder & Chief Scientist

Primary Organization
Lilt

Location
Berkeley, California, United States

Regions
San Francisco Bay Area, West Coast, Western US

Gender
Male

LinkedIn
View on LinkedIn

John DeNero. He is also Assistant Professor of Computer Science at UC Berkeley. Before that he was a research scientist at Google working on Translate.. He received a PhD in Computer Science from UC Berkeley in 2010 under the direction of Dan Klein.

Limited-Time Promo

~~\$588~~ \$470
for Crunchbase

Use code CLOSEOUT



Close out the quarter strong
with Crunchbase Pro

RED



Alexandre Bayen
@alexandrebayen

Very excited to start as
@UCBerkeley new Associate
Provost for #MoffettField
Program Development, on
Jan. 1, 2022. Looking forward
to work with EVCP team at
UC Berkeley and
@NASAAMES @NASA staff
to build presence of UC
Berkeley at Moffett Field.

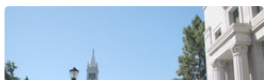


Jan 3, 2022



Alexandre Bayen
@alexandrebayen

With sadness and emotion I
stepped down from the
Directorship of @BerkeleyITS
at @UCBerkeley. Serving has
been an honor. Extremely
proud of all achieved together,
grateful to all at ITS, through
challenging times.



Industry experience

Technical consulting

- Uber, mapping, routing, and mobility systems design, 2018-2019
- Waze / Google, shared mobility services, 2018
- Olivier Wyman, autonomous mobility solutions / infrastructure development for smartcities, 2016-2017
- Kayrros, data science and methodologies for VMT accounting at various spatio-temporal scales, 2016
- Nokia development of IP for location based services (transportation, health, mobility), Jan. 2012 - Sep. 2012
- BAE Systems, development of a tracking system for UAV-based reconstruction of ground traffic, Oct. 2010 - Dec. 2011
- NAVTEQ, development of traffic flow estimation tools for probe-based monitoring systems, June 2009 - Dec. 2010

Expert witness

- Google vs. Traffic Information LLC, 2010 - 2012
Patent US 6,466,862, Case No. 3:09-cv-00642-HU.
Role: Technical expert for plaintiff, hired by Perkins Coie LLP
- Core Wireless Licensing S.A.R.L. vs. Samsung L.G., 2015
Patent US 7,072,667, Case No. 2:14-cv-911-JRG-RSP and 6:14-cv-751. Role:
Technical expert for plaintiff, hired by Hueston Hennigan LLP

Entrepreneurship

- Co-founder, Chief Scientist, SafelyYou Inc., 2015 - present

Corporate influence and the academic computer
science discipline. [4: CMU, computer
architecture and real estate]

Camille Akmut

July 1, 2022

abstract Prosopographical work on the four major centers for computer research in the United States has now been conducted, resulting in big questions about the independence of, so called, computer science.

Introduction

Buildings named "Gates", chairs called "Cadence", succursal in Qatar, deep ties to corporations, Intel and soon Facebook: Here is the modern university of the early 21st century.

But, Carnegie - the founder - was not content with merely naming a professorship or an entire department or even a whole residential college after himself, he went further than anyone with a university... A biographer reports the following, (Carnegie who had some literary aspirations often wrote grandiose texts e.g. his draft letter of departure from Business),

'During the long summer months spent at Skibo in this first year of his retirement, [he] had ample time to consider how best to disperse his vast surplus of wealth, upon which he had hardly as yet made a dent. For someone who had written so extensively and preached so eloquently as he on the duties of the man of wealth, it is rather surprising that he faced this task better armed with platitudes (...).'

CMU is betting on two fields in computer science : AI and Robotics, and Cloud computing. Considering the circumstances in which this science takes place, constantly torn between academic ideals that feel as distant as fairy tales and the everyday necessities as well as practical opportunities and lucrative benefits available far and wide to computer scientists, the idea that this research is conducted in the interest of the great majority can be seriously doubted.

abbreviations

CS	= Computer Science
ECE	= Electrical And Computer Engineering
ML	= Machine Learning
Pr.	= Professor
Univ.	= University
Ass.	= Assistant
Assoc.	= Associate
Aff.	= Affiliated
Fac.	= Faculty
Dpt.	= Department
Dir.	= Director
Ma.	= Masters
Und.	= Undergraduate
Prog.	= Program/s
Em.	= Emeritus
f.	= fellowship
aw.	= award
F	= Facebook
MS	= Microsoft
AMZ	= Amazon
GM	= General Motors
fo.	= founder, implied company
con.	= consultant etc.
M	= Million, implied USD

	academic rank, position	corporate funding		corporate employment, ties	PhD
Aldrich, Jonathan	Professor	F, Ethereum Foundation	x	Sequent Computer Systems; fo.	Washingt
Andersen, David	Professor	MS f.	x	Google Brain; Intel[con]; BrdgAI[fo]	MIT
Balcan, Nina	Pr. [‘Cadence Design Systems’]	G, AMZ[AWS ML] aw; Raytheon f	x	MS	Carnegie
Blelloch, Guy	Professor		x	Intel ” <i>Affiliated Faculty</i> ” [+ Lombardy real estate]	MIT
Blum, Manuel	Univ. Pr. [‘Bruce Nelson’], Em.				MIT
Brookes, Stephen	Professor				Oxford
Brumley, David	Professor; Affiliated Faculty		x	Stanford ’computer security officer’; ForAllSecure [‘CEO’]	Carnegie
Bryant, Randy	University Professor Emeritus	IBM aw.	x	IBM, HP ’and other companies’ [con]	MIT
Cervesato, Iliano	Teaching Professor		x	ITT Industries; Deductive Solutions[fo]	Torino
Cortina, Thomas	Assoc. Dean for Und. Prog.; Teaching Pr.	G [‘CS4HS’]	x	IBM	Polytech
Dannenbergh, Roger	Professor Emeritus				Carnegie
Eckhardt, Dave	Teaching Professor				Carnegie
Erdmann, Michael	Professor, CS and Robotics				MIT
Faloutsos, Christos	Professor	G(>1.5M),Boeing(200K),IBM..	x	Intel ” <i>Affiliated Faculty</i> ”	Toronto
Forlizzi, Jodi	Pr., Assoc. Dean for Diversity, Equity And Inclusion; Aff. Fac.	G, MS, GM [+’US Military’]	x	Pratter.us [’healthcare startup’, fo.]	Carnegie
Frieze, Alan	University Professor; Aff. Fac.	IBM aw.	x		London
Ganger, Greg	Professor		x	Intel ” <i>Affiliated Faculty</i> ”	Michigan
Garlan, David	Pr.; Assoc. Dean for Ma. Prog.; Aff. Fac.	IBM aw.	x	Tektronix, Inc.	Carnegie
Gibbons, Phillip	Professor	F, Intel, Oracle	x	AT&T, Lucent, Intel, HP, DEC	Berkeley
Gibson, Garth	Consulting Professor		x	Panasas Inc. [fo]	Berkeley
Gligor, Virgil	Professor, Affiliated Faculty	[NSA-NIST aw.]	x	Burroughs, IBM [con.], SAP	Berkeley
Gupta, Anupam	Professor		x	Lucent	Berkeley
Harchol-Balter, Mor	Professor [Bruce Nelson]	G, MS, IBM aw., F f.			Berkeley
Harper, Robert	Professor				Cornell
Hodgins, Jessica	Allen Newell Univ. Pr. of CS And Robotics	Packard f.	x	F, Disney	Carnegie
Kanade, Takeo	U.A. Helen Whitaker Univ. Pr.				Kyoto
Lee, Tai-Sing	Professor				MIT,Har
Mackey, John	Teaching Professor				Hawaii
Mason, Matthew	Professor, CS and Robotics		x	IBM	MIT
Maxion, Roy	Research Professor				Colorado
Mitchell, Tom	Aff. Fac., E. Fredkin Univ. Pr., Faculty Founders Univ. Pr.		x	Squirrel AI [‘Chief AI Scientist’]	Stanford
Mowry, Todd	Professor		x	Intel, silicon Graphics; IBM [con.]	Stanford
O’Donnell, Ryan	Professor	MS	x	MS	MIT
O’Hallaron, David	Pr. of CS and ECE, Dir. of CS Ma. Prog.	AMZ, Intel[‘cloud’],IBM	x	Intel [‘Director’], GE	Virginia
Pfenning, Frank	Professor				Carnegie
Platzer, André	Professor				Oldenbur
Pollard, Nancy	Professor				MIT
Ravi, R.	Professor; Affiliated Faculty				Brown
Reddy, Raj	Moza Bint Nasser Univ. Pr.; Aff. Fac.	Honda	x	IBM	Stanford
Rosenfeld, Roni	Aff. Fac.; Dpt. Head, ML Dpt.; Pr.		x	G, DNS Capital, Ignite Venture Partners [con.]	Carnegie
Rudich, Steven	Professor				Berkeley
Sakr, Majd	Teaching Professor		x	NEC	Pittsburg
Sandholm, Tuomas	Angel Jordan Univ. Pr. of CS	55M ’venture capital raiser’+22M	x	G,Baidu[con.]; CombineNet,Optimized Markets,Strategy Robot[military][fo]	Amherst
Satyanarayanan, Mahadev	Carnegie Group Professor of CS		x	” <i>Intel Affiliate researcher</i> ”	Carnegie
Schwartz, Russell	Professor		x	Celera Genomics	MIT
Scott, Dana	University Professor Emeritus	Bell Telephone f.	x	Xerox	Princeton
Seshan, Srinivasan	Pr.; Department Head, CS Dpt.		x	IBM; Intel [con.]	Berkeley
Shaw, Mary	A. J. Perlis Univ. Pr.; Faculty		x	Research Analysis Corporation	Carnegie
Siewiorek, Daniel	Buhl Univ. Pr. of ECE And CS; Fac.				Stanford
Simmons, Reid	Research Professor	Schlumberger			MIT
Sleator, Daniel	Professor		x	Bell	Stanford
Steenkiste, Peter	Professor of CS & ECE				Stanford

Stehlik, Mark	Teaching Pr.; Ass. Dean for Outreach				- (Carnegie Mellon)
Sutner, Klaus	Teaching Professor				Munich
Touretzky, David	Research Professor				Carnegie Mellon
Veloso, Manuela M.	Professor Emeritus	AT&T award	x	JPMorgan AI	Carnegie Mellon
von Ahn, Luis	Consulting Professor	MS, Packard f.	x	G	Carnegie Mellon
Xing, Eric P.	Professor	IBM aw.	x	F; Petuum Inc. [AI, fo]	Berkeley
Zhang, Hui	Consulting Professor		x	Conviva [fo]	Berkeley

1. Composition of population

All (full) professors of the Computer Science Department at Carnegie Mellon were included, both teaching and research professors and plain alike.

Emeritus professors, present in a small number (total 6¹), were included (the reader can come to their own conclusions as to how divergent they are as a group).

(n=59)

2. Education and research

fig. CMU CS Dpt. full professors - PhD origins

Carnegie Mellon	15	(29%)
MIT	11	(19%)
Berkeley	9	(15%)
Stanford	6	(10%)
each one	18	Washington, Oxford, Torino, Polytechnic University [‘now NYU-Poly’], Toronto, London, Michigan, Cornell, Kyoto, Hawaii, Colorado, Virginia, Oldenburg, Brown, Pittsburgh, Amherst, Princeton, Munich

(n,t=59)

fig. CMU CS Dpt. full professors - PhD origins geographical distribution

North America	53	(90%)
— USA	52	(88%)
UK	2	
Europe, rest	3	(5%)
Japan	1	

(n,t=59)

fig. CMU CS Dpt. full professors - PhD origins US public vs private

Private	36	(69%)
Public	16	(31%)

(n,t=52)

Carnegie Mellon follows strategies previously encountered : it recruits primarily from its own ranks, and preferably from the private sector (about 70% of all of CMU’s Cs professors with a US PhD).

Note : Cortinas provides the information ”*Polytechnic University (now NYU-Poly)*”. Tai Sing Lee has 2 PhDs, one from Harvard the other from MIT (engineering, and ‘medical physics’ respectively).

Erdmann and Mason, both specialists in Robotics, had the same advisor at MIT (Lozano-Perez)?

Stehlik does not appear to have a PhD,

”*It turned out that Carnegie Mellon’s focus on research and my focus on teaching weren’t exactly compatible, though. Also, at one point my adviser left Carnegie Mellon to go to Bell Labs, which made me less happy with what I was doing. Then a teaching position opened for a programming class. I applied and got it, expecting that it would just be a short-term position (...)*” [CMU women@scs interviews]

Klaus Sutner, another teaching professor at CMU, makes the following interesting note about his career and coming to computer science :

”*Actually my degree is in mathematics, and so my very first appointment was as an Assistant Professor of Mathematics. But then, after a year I switched to computer science—for many reasons, but mainly because that’s where the action is.*” [ibid.]

¹Note : CMU keeps listing Manuel Blum as faculty after a public break with the university by the latter (in 2018?) as part of a controversy. Venkatesan Guruswami, despite having left CMU half a year ago (for Berkeley, in Jan.) is also still listed.

2.1 Research

CMU has a strong reputation in at least three areas, 2 known to us, and another one :

- Computer architecture, or 'systems' (as they call it) : i.e. Randy Bryant and David O'Hallaron (CMU's counterpart to Hennessy and Patterson at Berkeley)
 - with a sub area in "Cloud" or "Edge" computing (O'Hallaron, Satyanarayanan)
- Programming languages, esp. functional : e.g. Dana Scott, David Touretsky (LISP), Robert Harper (ML) ...
- Robotics (e.g. Raj, Erdmann, Mason, Kanade). Robotics Institute was founded by Reddy Raj, while Kanade advances CMU's area PhD program is "*probably the first of its kind in the world.*"

[Berkeley has or had a strong reputation in theoretical computer science i.e. algorithms (Karp); Stanford in AI/ML, in close association with corporations e.g. Google, in addition to a historical strong suit in algorithmic due to Knuth's presence... MIT's reputation is largely built on accomplishments dating back close to half a century for the most important ones, but CSAIL continues to be renowned, whether similarly based on an illustrious lingering past or its actual current state can be argued²]

3. funded or named chairs, student outcomes

CMU is not very forthcoming about sponsored chairs, (like Berkeley, in that regard), and information was gather whenever available from individuals' data (e.g. CVs).

Most funded or named chairs at CMU, made public, are derived from famous computer scientists or CMU alumni or affiliates (sometimes both).

It is reflective of this discipline that a majority of computer science professors see as an accomplishments to be able to count their former at companies like Google, Facebook and the like (entire sections of CVs are customarily reserved for that purpose, e.g. Eric Xing lists dozens of his students in employment as part of Big Tech).

4. Ethics

Dave Andersen, EXEMPLI GRATIA, indicates "*Pronouns: He / him*" and that he will not review "*publications that follow the IEEE or Elsevier copyright policy*", but bizarrely enough saw less issues with employment on AI, of all dangerous things, at Google as part of their elite "Google Brain" project... (thus, incarnating today's perfect liberal : white knight on cultural issues, but silent as soon as his class interests are touched...)

He also "*provided (...) intellectual property consulting and expert witnessing. Research consulting for Intel*" [personal website; CV]

Also "*Expert witness in a smartphone patent lawsuit, 2011-2012*" [CV] was his colleague and fellow Pr. Jonathan Aldrich, EXEMPLI GRATIA.

(It is possible that Mr. Aldrich was fighting the little man's fight in the courts, it cannot be excluded, although the inclusion under "Consulting and Industry" in his CV somehow suggests otherwise... Same for Anderson/Intel.)

Pr. Balcan, EX. GRATIA ETC., "*GPA 10.00/10.00*" [CV] in hand, made her corporate debut in America at Microsoft and gets her funding from Google to Amazon through Raytheon.

Guy Blelloch, IN NOMINE PATRIS ET FILII ET SPIRITUS SANCTI, tops everyone with his bizarre entrepreneurial sense :

"*Interested in a vacation in Italy. Here is My parents apartment in Italy, which they rent.*" [Blelloch CMU website, 01/2007]

When not busy with algorithms, the Professor Blelloch does real estate on the side - 5000\$ dollars a month for a 2B if you're interested.

(Astonishongtly enough the business was run from the CMU website...)

The Pr. Brumley, whose company we cannot help but note sounds a lot like AllSafe, can count among his many 'accomplishments' to have aided in the arrest and imprisonment of a 17 year old "hacker", Dennis Moran (for targeting a US War on drugs propaganda

²In other words, is it a House Usher that everyone continues to perceive as if existing in a non-decayed state.

DARE, and RSA Security...) resulting in a profile by John Markhoff in the NYT. Bravo Mr. Brumley on a dubious use of your science, intellect and time.

Christos Faloutsos, funded in the millions by Google, Boing and IBM among many others, lists "Data Mining" as his first research interest [CMU personal website].

Jodi Forlizzi, deeply tied to Google, going back at least a decade of funding, became "*Dean for Diversity, Equity And Inclusion*" based on a background extremely distant from computer science - originally a designer. "Hey Alexa, What's Up?", a recent coll. study, is as bankrupt as scientific papers get, never seriously considering privacy despite wide spread reporting and their own observation that children start interacting with such devices at a very early age, even before smartphones, because they are drawn to the voice.

It is obvious what kind of "diversity" is going to be promoted here : the narrow, elite variety and corporate saturated kind (areas in which Forlizzi has gathered so much experience already, to much personal benefit, which she is now ready to share - with the right public...).

Phillip Gibbons exported his habits and network from Intel to CMU, including funding : barely a year after being made full prof., an "Intel Science and Technology Center for Visual Cloud Systems" (worth 15 M, per his website) was headquartered at CMU.

Garth Gibson, as soon as he discovered that CMU stood in the way of profit, put himself on leave of absence "to act as Co-Founder and Chief Technology Officer Panasas, Inc." [pers. CMU website 01/2006]

Mor Harchol-Balter, "*Valedictorian*" in her high school [CV], is funded by Google, IBM, Microsoft - list so long we can only refer to the original source.

Robert Harper and David Touretzky, along with dozens of other computer scientists (incl. also Abelson, Boneh, Rivest, Stallman...), contributed to or signed the Brief of amici curiae in support of Goldstein and 2600 in the DeCSS case [00-9185]. [Harper was also signatory of a amici curiae in MGM v Grokster]

Jessica Hodgins, Midwestern congeniality and salt of the earth type, "founded and ran research labs for Disney"³ and now is doing the same at Facebook...

"Like the other internet giants, Facebook acknowledges the importance of the university system. But at the same time, the companies are eager to land top researchers.

In Pittsburgh, Facebook hired two professors from the Carnegie Mellon Robotics Institute, Abhinav Gupta and Jessica Hodgins, who specialized in computer vision technology.

The new Facebook lab will focus on robotics and "reinforcement learning," a way for robots to learn tasks by trial and error. Siddhartha Srinivasa, a robotics professor at the University of Washington, said he was also approached by Facebook in recent months. It was not clear to him why the internet company was interested in robotics.

Andrew Moore, dean of computer science at Carnegie Mellon, did not respond to a request for comment. But over the past several months, he has been vocal about the movement of A.I. researchers toward the big internet companies. Google also operates an engineering office near Carnegie Mellon.

"What we're seeing is not necessarily good for society, but it is rational behavior by these companies," he said."⁴

[In pure dystopian fashion, Facebook refers to its AI Research by the acronym FAIR...]

Tai Sing Lee, at CMU leads a project to "*Reverse-Engineer Brain Algorithms*" ...

O'Hallaron has received a single 1.5M funding for work on "*Liberating Personal Computing from Hardware*" : O'Hallaron's extensive preoccupation with cloud computing taken into account, it appears he is working on displacing personal computing to remote servers - flowery language of pretend "liberation" ignored or discarded - considering additional funding from his longtime employer, Intel, in the amount of over 100,000 USD to work on that area, Amazon 'gifts' related to AWS, finally "cloud" appears 30 times in a CV of 20 pages⁵..

Majd F. Sakr, (in the third person style favored by, some portions of, academia), "*founded the Cloud Computing Lab and co-founded the Qri8 Qatar Robotics Innovation Lab at CMUQ. He also co-founded the Qatar Cloud Computing Center.*" [pers. CMU website, biographical statement]

Sandholm represents, and cumulates all of the follies of computer science academia : low achievement (PhD at Amherst - a great institution in the humanities, but which he avoids mentioning), leading to life long attempts to make up culminating is a 200 pages(!) - in large parts insane - CV, "serial entrepreneur" (his words), corporate tied AI ventures, obsession with rankings (at over 60 he continues keeping track of decades old GPAs with decimal precision - he goes on then to list windsurfing records, everything is a competition) ...

³"From 2008-2016, she founded and ran research labs for Disney, rising to VP of Research and leading the labs in Pittsburgh and Los Angeles." [CMU personal website]

⁴NYT 'Facebook Adds A.I. Labs in Seattle and Pittsburgh, Pressuring Local Universities' May 4th 2018.

⁵(compared with the veritable memoirs written by others, arguably less accomplished, it is short for his experience)

Like his most corporate-oriented colleagues, he knows all about the dirty secrets of professor led start ups being "*Founder and CEO of Strategy Robot, Inc., a CMU spinout that builds AI software products for strategic reasoning under imperfect information for US government military, intelligence, security, and cybersecurity applications.*" [CV]

His already bizzare CV includes strange sections like "EVIDENCE OF EXTERNAL REPUTATION"⁶ in which he includes such accomplishments as a "*100 Most Intriguing Entrepreneurs, award from Goldman Sachs, 2020.*" as well as accomplishments by his students (often co-directed) which he appears to be attributing to himself, even when taking place multiple years later, as well as a variety of poker (i.e. AI beats poker players-type) news. Someone as lost as Sandholm at his advanced age cannot be saved – not even Christian adorations repeated a thousand times would.//

Sandholm, more than anyone, incarnates the dubious new figure - found again and again in this series of studies - of the professor "captain" of academia and industry combined. It is very unlikely that this new profile of researchers, increasingly dominant and spearheaded by computer science, is to the benefit of science let alone public service.

Srinivasan is listed as "affiliated faculty" on the Intel Pitt. website, but lists this affiliation as or under "consulting" in his CV.

Reid Simmons is of the reported opinion that :

" Plenty of people are afraid of AI's capabilities. An expert says those worries are misguided. The larger concern is ensuring engineers understand ethics. (...) When early face-detection software failed to recognize African American faces it wasn't "an evil plot to discriminate against Blacks," Simmons said. "It was a lack of understanding about the diversity of training data that was needed in order to get the nondiscriminatory result." "

(In his PhD thesis he thanked Schlumberger - a corporation free of ethical concerns, as everyone knows - quote "*for their support, both financially and intellectually, during the course of my research.*")

He, along with his ethical AI and Robotics colleagues, should thus really enjoy this article.

"on leave at J.P.Morgan AI" is finally, EXEMPLI GRATIA, the Pr. Manuela Veloso (who specializes in AI and robots, in case there is any doubt).

⁶79 f.

Aldrich, Jonathan	https://www.cs.cmu.edu/~aldrich/aldrich-cv.pdf [21 pp.]
David Andersen	https://www.cs.cmu.edu/~dga/cv.pdf [12 pp.] ; https://www.cs.cmu.edu/~dga/bio.html
Balcan, Nina	https://www.cs.cmu.edu/%7Eninamf/cv_nina.pdf [23 pp.]
Blelloch, Guy	https://www.cs.cmu.edu/~guyb/ ; https://www.qatar.cmu.edu/event/blelloch/
Blum, Manuel	https://www.cs.cmu.edu/~mblum/pdfs/manuel_blum_cv.pdf [8 pp.]
Brookes, Stephen	https://www.cs.cmu.edu/~brookes/
Brumley, David	https://users.ece.cmu.edu/~dbrumley/ ; https://www.ece.cmu.edu/directory/bios/brumley-david.html
Bryant, Randy	https://www.cs.cmu.edu/~bryant/vitae.pdf [8 pp.]
Cervesato, Iliano	https://www.cs.cmu.edu/~iliano/cv.shtml [4 pp.]
Cortina, Thomas	cs.cmu.edu/~tcortina/ ; http://toilers.mines.edu/archive/CISEBI/media/presentations/TomCortina.pdf
Dannenberg, Roger	https://www.cmu.edu/cfa/music/people/Bios/dannenberg_roger.html
Eckhardt, Dave	https://www.cs.cmu.edu/~davide/publications.html
Erdmann, Michael	https://www.cs.cmu.edu/~me/whois-me.html
Faloutsos, Christos	https://www.cs.cmu.edu/%7Echristos/webvitae.pdf [52 pp.]
Forlizzi, Jodi	https://jodiforlizzi.com/sites/default/files/Forlizzi_Jan21_online.pdf [54 pp.]
Frieze, Alan	https://www.math.cmu.edu/~af1p/ ; https://www.cmu.edu/math/people/faculty/frieze.html
Ganger, Greg	https://users.ece.cmu.edu/~ganger/
Garlan, David	https://www.cs.cmu.edu/~garlan/Vitae%202021-06-09.pdf [38 pp.]
Gibbons, Phillip	https://www.cs.cmu.edu/~gibbons/Phillip%20B.%20Gibbons_files/gibbons-cv.pdf [34 pp.]
Gibson, Garth	https://www.cs.cmu.edu/~garth/
Gligor, Virgil	https://users.ece.cmu.edu/~virgil/ ; https://engineering.cmu.edu/directory/bios/gligor-virgil.html
Gupta, Anupam	https://www.cs.cmu.edu/~anupamg/ ; https://simons.berkeley.edu/people/anupam-gupta
Harchol-Balter, Mor	https://www.cs.cmu.edu/~harchol/cv.pdf [42 pp.]
Harper, Robert	https://www.cs.cmu.edu/~rwh/
Hodgins, Jessica	https://www.cs.cmu.edu/~jkh/
Kanade, Takeo	https://www.cs.cmu.edu/~tk/ ; https://www.ri.cmu.edu/ri-faculty/takeo-kanade/
Lee, Tai-Sing	https://www.cnbc.cmu.edu/~tai/
Mackey, John	https://www.cmu.edu/math/people/faculty/mackey.html
Mason, Matthew	https://www.cs.cmu.edu/~mason/mattscv.pdf [19 pp.]
Maxion, Roy	https://www.cs.cmu.edu/~maxion/ ; https://cylab.cmu.edu/directory/bios/maxion-roy.html
Mitchell, Tom	https://www.cs.cmu.edu/~tom/resume.pdf [13 pp.]
Mowry, Todd	cs.cmu.edu/~tcm/ ; https://www.toddcowry.org/ [13 pp.]
O'Donnell, Ryan	https://www.cs.cmu.edu/~odonnell/vita.pdf [18 pp.]
O'Hallaron, David	https://www.cs.cmu.edu/~droh/drohcv.pdf [24 pp.]
Pfenning, Frank	https://www.cs.cmu.edu/~fp/cv.html [10 pp. plus annex]
Platzer, André	https://lfcps.org/meta/Platzer-CV.pdf [20 pp.]
Nancy Pollard	graphics.cs.cmu.edu/nsp/
Ravi, R.	cmu.edu/tepper/faculty-and-research/faculty-by-area/profiles/ravi-r.html ; contrib.andrew.cmu.edu/~ravi/
Reddy, Raj	rr.cs.cmu.edu/ ; https://amturing.acm.org/award_winners/reddy_9634208.cfm
Rosenfeld, Roni	https://www.cs.cmu.edu/~roni/ [Google docs, 42 pp.]
Rudich, Steven	https://www.cs.cmu.edu/~rudich/ ; https://www.linkedin.com/in/steven-rudich-6422b8167
Sakr, Majd	https://www.cs.cmu.edu/~msakr/
Sandholm, Tuomas	https://www.cs.cmu.edu/~sandholm/
Satyanarayanan, Mahadev	https://www.cs.cmu.edu/~satya/
Schwartz, Russell	https://www.cs.cmu.edu/~russells/Russell_Schwartz_CV.pdf [16 pp.]
Scott, Dana	https://www.cs.cmu.edu/~scott/career.html
Seshan, Srinivasan	https://www.cs.cmu.edu/~srini/ [19 pp.]
Shaw, Mary	http://spoke.compose.cs.cmu.edu/shaweb/
Siewiorek, Daniel	https://www.cs.cmu.edu/~dps/ ; https://www.ece.cmu.edu/directory/bios/siewiorek-daniel.html
Simmons, Reid	https://www.cs.cmu.edu/~reids/
Sleator, Daniel	https://www.cs.cmu.edu/~sleator/ ; https://www.linkedin.com/in/dannysleator
Steenkiste, Peter	https://www.cs.cmu.edu/~prs/
Stehlik, Mark	https://www.cs.cmu.edu/~mjs/ ; http://www.women.cs.cmu.edu/What/Interviews/stehlik.php
Sutner, Klaus	https://www.cs.cmu.edu/~sutner/ ; www.women.cs.cmu.edu/What/Interviews/sutner.php
Touretzky, David	https://www.cs.cmu.edu/~dst/ e.g. .../DeCSS/touretzky-decl.html
Veloso, Manuela M.	https://www.cs.cmu.edu/~mmv/
von Ahn, Luis	https://www.cs.cmu.edu/~biglou/LuisvonAhn_CV.pdf [10 pp.]
Xing, Eric P.	https://www.cs.cmu.edu/~epxing/xing_cv_2021.pdf [39 pp.]
Zhang, Hui	https://www.cs.cmu.edu/~hzhang/

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- CMU. 2016. "Carnegie Mellon Joins IARPA Project To Reverse-Engineer Brain Algorithms" Feb. 3rd, scs.cmu.edu/news/2016/carnegie-mellon-
- Erdmann, Michael. 1989. *On Probabilistic Strategies for Robot Tasks*. PhD thesis, MIT.

appendix

- Jonathan Aldrich CV, pp. 18;21 (funding, and "consulting")
- Pr. Balcan CV, pp. 1-2
- Guy Blelloch real estate on the side, Lombardy "condominium" business/inheritance *cs.cmu.edu/ guyb/menaggioHome/* [the price gets higher as the description gets longer...]
- Christos Faloutsos CV, pp. 31-35 (grants)
- Gibbons, Phillip CV, pp. 31-32 ('Grants and Gifts')
- Garth Gibson CMU website 01/2006 ['on leave' for business]
- Mor Harchol-Balter CV, pp. 2-4; 27-36 ['honors', 'grants', 'Google Women in Tech' etc. etc.]
- O'Hallaron CV, pp. 23-24 ('support')
- Sandholm CV extracts (about 20 pages of 200)
- Intel Pittsburgh People (2006)
- Reid Simmons PhD thesis, p. iii (acknowledgments)
- Manuel Veloso CMU website ("on leave" at JPM, "Head, Machine Learning Department", etc.)

Curriculum Vitae

Jonathan Aldrich

Contact Information

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Executive assistant:

Linda Campbell
lv2c at cs dot cmu dot edu

Research: Engineering Languages

I work at the intersection of **programming languages** and **software engineering**. My research examines new ways to **express software and its properties** that improve our ability to **engineer software at scale**. Effective software engineering at scale is closely tied to design---how a system is broken into parts, and how those parts compose to achieve the desired functionality and properties of the system. Thus, my research develops new ways to **express design within source code**, where both tools and engineers can most effectively leverage it, thereby improving productivity and reducing errors. My work also focuses on improved **object models**---a foundational composition mechanism---as well as **type systems and logics** for specifying component boundaries and reasoning about the result of composition. I evaluate the systems I develop using a wide variety of techniques, including **mathematical proofs, case studies, code corpus studies, and evaluations with human subjects**. One might say that I work on languages for better software engineering, but that I also take an **engineering approach to language design**: thinking not just about what a language can express, but the cost-benefit tradeoffs of various language constructs and how those constructs work together to help engineers develop software more effectively.

Education

Ph.D., Computer Science and Engineering, University of Washington, August 2003.
Advisors: Craig Chambers and David Notkin
Thesis: Using Types to Enforce Architectural Design

M.S., Computer Science and Engineering, University of Washington, June 1999.

B.S., Engineering and Applied Science (Computer Science), California Institute of Technology, June 1997.

Funding

2021 Ethereum Foundation grant, \$42,000.

2020 Ethereum Foundation grant, \$64,690.

2019 National Science Foundation award, "SHF: Medium: Gradual Verification." \$1,017,511 over 4 years, 2019-2023. With Joshua Sunshine.

2019 National Science Foundation award, "SHF: Small: Declaratively Creating Semantics-driven Visualizations." \$449,680 over 3 years, 2019-2022. With Joshua Sunshine and Keenan Crane.

2018 Facebook Testing and Verification Award, "Incremental Verification, Gradually." \$50,000 gift. With Eric Tanter and Joshua Sunshine.

2017 National Security Agency Lablet, Co-PI (with William Scherlis as Lead PI). Renewable for 3 years.

2015 DARPA BRASS award, Lead PI (with 4 Co-PIs), "Intelligent Model-Based Adaptation for Mobile Robotics", \$7.8 million over 4 years, November 2015-2019

2014 Stevens Institute, joint project with Christian Kästner and Joshua Sunshine, as part of a multi-faculty effort with William Scherlis as lead.

2014 National Security Agency Lablet, Co-PI (with William Scherlis as Lead PI). 2014-2017 (\$2.3M in 2014).

2013 National Security Agency Lablet award, "Race Vulnerability Study and Hybrid Race Detection." \$139,598 over 2 years, 2013-2014.

2012 National Security Agency Lablet award, "A Language and Framework for Development of Secure Mobile Applications." \$500,000+ over 3 years, 2012-2014.

2012 National Science Foundation award, "Collaborative Research: Teaching Software Modularity through Architectural Review." \$100,000 over 2 years, 2012-2014.

2011 National Science Foundation award, "SHF:Small:Foundations of Permission-Based Object-Oriented Languages." \$500,000 over 3 years, 2011-2014.

2010 CMU|Portugal research award, "Aeminium: Freeing Programmers from the Shackles of Sequentiality." \$321,0185 over 3 years, 2010-2012.

2008 National Science Foundation award, "CPA-SEL: Practical Typestate Verification with Assume-Guarantee Reasoning." \$300,000 over 3 years, 2008-2010.

DARPA Computer Science Study Group member. \$600,000 over 3 years, potentially renewable for 2 more years. 2007-2010.

2006 National Science Foundation CAREER award, "Lightweight Modeling and Enforcement of Architectural Behavior," \$450,000 over 5 years. 2006-2010.

Human and Robotic Technology: Dependable Real-Time and Embedded Space Software, NASA (Michael Shafto, Program Manager), \$1.1 million over one year (2005-2006). Project Lead.

ITR: Synthetic Reality: Physically Rendering Dynamic 3D Objects from Programmable Matter. National Science Foundation (Helen Gill, Program Manager), \$662,000 over 2 years. Senior Personnel.

Integrating Software Architecture and Software Development. National Science Foundation (Sol Greenspan, Program Director), \$300,000 over 3 years. Co-written with advisor Craig Chambers while a graduate student; portions subcontracted to my research group at CMU after graduation.

External Talks

Consulting and Industry

Co-founder and CTO, Noteful LLC, 2022

Summer Teaching, Torhea Education Group, 2019

Expert witness in a smartphone patent lawsuit, 2011-2012

Architecture consultant for an embedded software system, 2006

Professional Societies

Senior Member, Association for Computing Machinery, and SIGSOFT and SIGPLAN special interest groups

Senior Member, Institute of Electrical and Electronics Engineers

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RESEARCH INTERESTS

Learning Theory, Machine Learning, Theory of Computing, Artificial Intelligence, Algorithmic Economics and Algorithmic Game Theory, Optimization.

APPOINTMENTS

- **July 2020 - present** Professor, Cadence Design Systems Chair in Computer Science, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA.
- **June 2014 – 2020** Associate Professor, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA. (tenured in 2016)
- **2009 - 2014** Assistant Professor, College of Computing, Georgia Tech, Atlanta, GA.
- **2008 - 2009** Postdoctoral Researcher, Microsoft Research NE, Cambridge, MA.
- **2000 - 2002** Instructor, Computer Science Department, University of Bucharest, Romania.

EDUCATION

- **Ph.D. 2002 – 2008.** Carnegie Mellon University, Pittsburgh, PA. Computer Science Department.
- **M.S. 2000 – 2002.** University of Bucharest, Romania, Faculty of Mathematics, Computer Science Department, M.S. Degree in Computer Science, GPA 10.00 / 10.00.
- **B.S. 1996 – 2000.** University of Bucharest, Romania. Faculty of Mathematics, Computer Science Dept., GPA 10.00/10.00. “Summa Cum Laude” Diploma.

HONORS AND AWARDS

Major Leadership Positions

- General Chair for the 38th International Conference on Machine Learning (**ICML**) 2021.
- Program Committee Co-Chair for the 34th Conference on Neural Information Processing Systems (**NeurIPS**) 2020.
- Invited Co-organizer for the “Machine Learning and Computational Modelling” Session of the Japanese- American-German Kavli Frontiers of Science Symposium, National Academy of Sciences, 2017.
- Co-organizer for “Foundations of Machine Learning”, semester long program at the Simons Institute for Theory of Computing, 2017.
- Program Committee Co-Chair for the 33rd International Conference on Machine Learning (**ICML**) 2016.
- Program Committee Co-Chair for the 27th Annual Conference on Learning Theory (**COLT**) 2014.
- Board Member of the International Machine Learning Society (most recent term, 2017- current).

Other Honors

- 2021, Simons Investigator in Theoretical Computer Science.
- 2020, Cadence Design Systems Chair in Computer Science.
- 2019, ACM Grace Murray Hopper Award (awarded to the outstanding young computer professional of the year).
- 2019, AWS Machine Learning Research Award
- 2019, Bloomberg Data Science Research Award.

- 2019, Exemplary Artificial Intelligence Track Paper, 20th ACM Conference on Economics and Computation.
- 2018, Amazon Research Award.
- 2015, Kavli Frontiers of Science Fellow, National Academy of Sciences.
- 2014, Sloan Research Fellowship.
- 2013, Georgia Power Professor of Excellence.
- 2013, Raytheon Faculty Fellowship.
- 2012, Runner Up Best Paper, 25th Annual Conference on Learning Theory.
- 2011, Google Research Award.
- 2011, Microsoft Faculty Fellowship.
- 2009, NSF CAREER Award.
- 2009, CMU School of Computer Science Distinguished Dissertation Award.
- 2008, Mark Fulk Best Student Paper Award, 21st Annual Conference on Learning Theory.
- 2007 - 2008, IBM Ph.D. Fellowship.
- 2000 - 2001, Romanian Government Merit Fellowship (during my MS studies).
- 1996 - 2000, Romanian Government Merit Fellowship (during my undergraduate studies).
- 2001, World Bank Fellowship, for visiting CNRS, Toulouse, France.
- 1999 - 2000, European Union Erasmus/Socrates scholarship to study at the University of Patras, Greece.

Selected Distinguished Lectures and Invited Talks

- Uhlenbeck Lecture, Women in Mathematics, Princeton, 2022.
- Invited speaker, International Congress of Mathematicians, 2022.
- Distinguished Lecture, Max Planck Institute for Software Systems, 2022.
- Distinguished Lecture, ETH Zurich Distinguished Computer Science Colloquium, 2022.
- Invited talk at the 39th International Symposium on Theoretical Aspects of Computer Science (STACS) 2022.
- ACM Tech Talk, 2021.
- Invited talk at the 32nd International Conference on Game Theory, 2021.
- Plenary talk at the Information Theory Workshop, 2020.
- Plenary talk at the 14th Latin American Theoretical Informatics Symposium, 2020.
- AI Research Distinguished Speaker Series Lecture, Boston University, 2019.
- Distinguished Graduate Seminar Series Lecture, ECEE School, Arizona State University, 2019.
- Keynote talk at the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD) 2019.
- Keynote talk at the 12th International Symposium on Algorithmic Game Theory (SAGT) 2019.
- Keynote talk at the 3rd International Summer School on Deep Learning (DeepLearn) 2019.
- Plenary talk at the 24th LIDS Student Conference, MIT, 2019.
- Distinguished Lecture, University of Southern California (USC) Computer Science Department, 2018.
- Plenary talk at the Information Theory and Applications Workshop (ITA), 2018.
- Plenary talk at the 9th China Theory Week, 2015.
- Plenary talk at the 14th International Conference on Autonomous Agents and Multiagent System (AAMAS), 2015.
- Keynote talk at the 7th Workshop for Women in Machine Learning, 2013.
- Distinguished Lecture, Carnegie Mellon University, School of Computer Science, 2010.



Guy E. Blelloch

Professor

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[Other Contact Information](#)

Research:

PUBLICATIONS

I'm co-director of the [ALADDIN Center](#) for the study of algorithms.

My research has largely been in the interaction of Algorithms and Programming Languages. Here is some of my more recent research.

- [Adaptive Computation](#). The idea is to keep track of dependencies while executing an algorithm so that you can go back, change history, and propagate the change to the output.
- [Data Structures for Graph Compression](#). We look at how to represent graphs with a small number of bits while still allowing efficient queries on the graphs.
- [Algorithms for Multiprocessor Garbage Collection](#). The goal here is to bound the wait time for a GC while also bounding the memory required.
- [Purely Functional Algorithms](#). We are interested in purely functional (side effect free) algorithms for various problems; most notably algorithms in computational geometry.

and here are other things I've worked on:

- [Thread Scheduling](#)
- [Parallel Algorithms](#) ([Delaunay Triangulation](#), [Treaps](#), [Sorting](#), [Graph Connectivity](#), [List Ranking](#))
- [The NESL Language](#)
- [Provably Efficient Language Implementations](#)
- Other: [Pipelining with Futures](#), [Multibank Memory Systems](#).

Most of the research has been done under the umbrella of the [ALADDIN](#) center and as part of the [Sangria](#) project.

Earlier work was done as part of the [PSCICO](#) and [Scandal](#) projects.

You can try our [animations of parallel algorithms](#). These were written in NESL and converted to JAVA using our [NESL-to-Java-applet](#) translator.

You can also try our [Pittsburgh map and restaurant database](#). The interface is terribly primitive

compared to e.g. mapquest, but this was the first of the map interfaces available on the web.

Teaching:

- [15-853](#): Algorithms in the Real World (Fall 04)
- [15-499](#): Algorithms and Applications (Spring 03)
- [15-451](#): Algorithms (Spring 02)
- [15-213](#): Introduction to Computer Systems (Spring 00)
- [15-850](#): Algorithms for Indexing and Searching (Spring 99)
- [15-849\(C\)](#): Parallel Computing (Fall 98)

I maintain the SCS [faculty information page](#) and [guide for new faculty](#) (only available at CMU).

If you are within CMU CS you can try my [Side Bar](#).

Find an address in Pittsburgh:

Or a user's page at CMU CS:

Interested in a vacation in Italy. Here is [My parents apartment in Italy](#), which they rent.

Guy.Blelloch@cs.cmu.edu

Last Updated: June 30, 2022

Holiday Rentals: Vacation Rental Apartment

Balcone Di Casate

Menaggio ~ Lake Como ~ Italy

2 Bedrooms ~ 1 Bathroom ~ Sleeps 4 ~ Pool

Rental Rate: 800 Euros/week (high season), or \$1000

Kids Welcome ~ No Smoking ~ No Pets

- Nicely landscaped **top-quality condominium** complex with gates and a garage. Quiet.
- **Large Terrace** with a 180 degree view of the most beautiful part of [Lake Como](#), including views of Bellagio and Varenna.
- Very well maintained apartment with **new kitchen**.
- 70sqm (750 sqft). Private Garden.
- Large shared **Pool**, with shallow area for kids.
- Five minute walk to public [boats and ferries](#), which take you to most locations on the lake.
- Ten minute walk to the center of [Menaggio](#), one of the nicest towns on the lake.
- Beautiful [hikes](#) or [drives](#) to local mountains and villages.
- Within 2 kilometers of one of the most picturesque and challenging [golf courses](#) in Italy.



View of Varenna from the private terrace.

Lovely condominium located in Menaggio that sleeps four people in comfort in gated community with large swimming pool (open mid June to mid-September). The apartment has a living/dining room, a newly remodeled kitchen, two bedrooms and a bathroom. One bedroom has a queen bed and french doors onto the terrace, and the other has bunk beds. The apartment is nicely furnished and includes linen and a fully equipped kitchen. The bathroom has a clothes washer and the kitchen a dishwasher.



Living Room



Kitchen

The apartment has a large furnished half-covered terrace with fabulous views over Lake Como. The terrace includes two areas, one with a dining table and one with a sitting area. Each building (5 total) in the complex has 2 floors each with 2 apartments. This apartment is on the lower floor, and has a private garden below the terrace and along the side of the apartment.



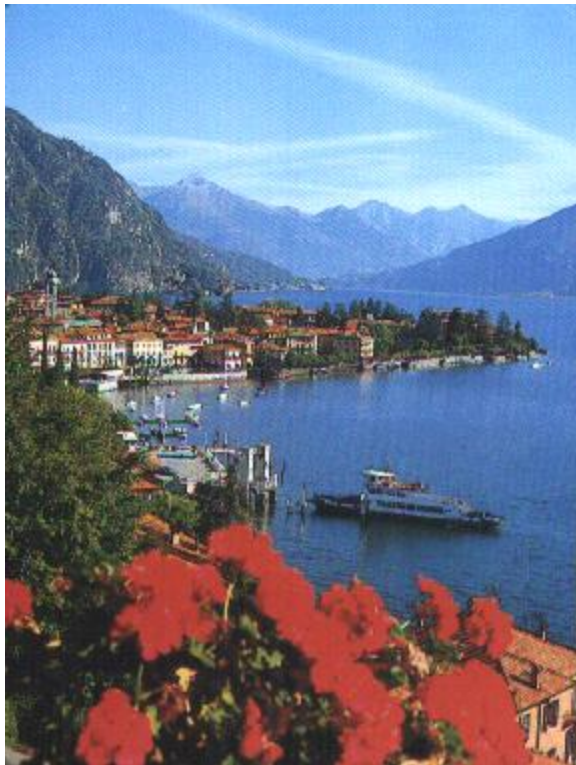
Terrace



Private garden, looking down from terrace

It is a 5 minute walk to the dock for lake boats and ferries as well as a minimarket and it is a 10 minute walk to the center of Menaggio with its restaurants, shops and other facilities.

There is a garage on the premises. Menaggio is located 1.5 hours drive from Milan-Malpensa Airport or the center of Milan, 0.5 hour from Lugano, Switzerland and 2 hours to the Upper Engadine (St. Moritz), Switzerland. While a car is recommended, it is not essential. Menaggio is served by an excellent public service system. There is one direct bus a day to and from Malpensa Airport and two more buses connecting in Como. There are hydrofoils, lake boats and ferries allowing access to all points on Lake Como. There are buses to Como, Lugano, St. Moritz and many mountain villages. There are excellent hikes in the mountains surrounding the lake. There is a first rate golf course.



View of Menaggio and Ferry
from the Condominium Complex



Map of Lake Como
(a larger [map of the region](#))

Available mid-July to mid-September 2004. Rent is Euros 1,000 (\$1,200) per week. Security deposit of Euros 500 (\$600) required. Non-smokers, no pets.

For further information contact pblelloch@aol.com or phone 1-609-799-1475 (USA).



Bedroom 1



Pool, overlooking Lake



Private garden next to terrace



Condominium Complex



Apartment: Menaggio -->

[\[Publications/patents\]](#) [\[Software\]](#) [\[Talks/tutorials\]](#) [\[Courses\]](#) [\[Service\]](#) [\[Misc.\]](#)



[medium-res](#) and
[high-res](#) photo

U.S. mail address:

Christos Faloutsos
[Dept. of Computer Science](#), GHC 7003
[Carnegie Mellon University](#)
5000 Forbes Avenue
Pittsburgh, PA 15213-3891

Admin: Marcie Baker

email: christos-admin-support AT cs DOT cmu DOT edu

If interested in grad studies, postdoc, summer internship, etc:

Thank you for your interest! Please see [this](#) first.



Christos Faloutsos

Current Position: Fredkin Professor of Computer Science.

Courtesy appointment: [Electrical and Computer Engineering, CMU](#)

Academic Degrees: Ph.D. and M.Sc. ([University of Toronto](#)); B.Sc. ([Nat. Tech. U. Athens](#))

Short [bio](#) and full CV in [pdf](#); customized for funding agencies, [2-page versions](#).

Up-to-date calendar: [here](#)

Other affiliations:

- [Database group at CMU](#)
- [Machine Learning Department](#)
- [PDL](#) (Parallel Data Lab)

Past affiliations:

- [Informedia](#) (1997-2007)
- [Computational Biology Department](#) (2003-2015)

Research Interests:

- Data Mining for graphs and streams
- Fractals, self-similarity and power laws
- Indexing and data mining for video, biological and medical databases
- Data base performance evaluation (data placement, workload characterization)

Projects

53. *Graph mining and multi- relational learning: Tools and applications*. Shobeir F akhraei and Christos Faloutsos TheWebConf, Ljubljana, Slovenia, April 19-23, 2021.
54. *Graph mining and multi-relational learning: Tools and applications*. Shobeir F akhraei and Christos Faloutsos ECML-PKDD, Sept. 19, 2022.

GRANTS

1. IBM FULCRUM project grant, round II (1986-1988). 2 IBM PC AT's, fully equipped ($\approx$ \$10,000). The project is to implement a full-text retrieval system, using a novel method, called "signature files".
2. NSF Grant (ID: DCR-8616833), 7/87 to 12/89. Title: "*Signature File Methods for Text Data Bases*". Amount: \$102,176.
3. NSF REU (Research Experience for Undergraduates) grant (IRI-8844914), amendment to the previous NSF grant DCR-8616833. Amount: \$3,880.
4. Maryland Industrial Partnerships (MIPS) grant, 1/88 to 6/88. Title: "*Data and Document Interchange in Machine Readable Form*" Amount: \$30,241.
5. NSF Grant (ID: IRI-8719458), 7/88-7/91 Title: "*High Performance Engineering Information Systems*". Principal Investigator: N. Roussopoulos. Co-Principal Investigators: T. Sellis, L. Mark, C. Faloutsos. Amount: \$391,071.
6. AFOSR Grant (ID: AFOSR-89-0303), 4/89-4/92 Title: "*Design Issues for High Performance Engineering Information Systems*" Principal Investigator: N. Roussopoulos. Co-Principal Investigators: T. Sellis, L. Mark, C. Faloutsos. Amount: \$405,000.
7. NSF REU (Research Experience for Undergraduates) grant (IRI-8943224), second amendment to the NSF grant DCR-8616833. Amount: \$3,998.
8. NSF CISE grant (IRI-8944635), third amendment to the NSF grant DCR-8616833. Amount: \$12,914. The Department provides \$14,947 as matching funds.
9. Department of Commerce (Bureau of Census) Joint Statistical Agreement (JSA 91-9), 2/1/91-2/1/92. Title: "*Spatial Orders for Census and Sampling Applications*". Amount: \$15,000. The Department provides \$6,143 as matching funds.
10. EMPRESS Software Inc., donation of software and 1 year maintenance contract, 4/91. Amount: \$23,610.
11. Thinking Machines Inc., donation of software and 2 years maintenance contract, 1/92. Amount: \$130,000.
12. NSF-ESPRIT grant (IRI-9205273), 6/93-6/96. Title: "*Multimedia Information Retrieval Systems*" Amount: \$30,000.
13. Illustra Information Technologies Inc., Engines for Innovation Research Grant, 10/94. Title: "*Database Support for Genomic and Medical Applications*" Principal Investigators: Michael Franklin and Christos Faloutsos. Amount: Database Server Software, Training and Maintenance (dollar value: to be determined).
14. NSF grant (IRI-9625428), 8/1/96-7/31/99 Title: "*Fast Searching of Multimedia Objects by Content*" Amount: \$305,837.
15. IBM-SUR grant, 1996-1997 Title *Studies in Multimedia Data Acquisition, Searching and Representation* PIs: Gary Marchionini and Christos Faloutsos Equipment grant.
16. Maryland Procurement, 9/96-9/99 Title: "*Document Image, Video and Natural Language Processing*" PI: David Doermann and Amy Weinberger Co-PIs/Senior personnel: Christos Faloutsos and Bonnie Dorr Amount: (est.) \$575K
17. NSF IIS, 9813354 6/1/98-11/30/98 Title: "*Workshop On Automated Learning And Discovery*" PIs: Sebastian Thrun, Tom Mitchell, Christos Faloutsos, Larry A. Wasserman. \$19,545.
18. NSF KDI, DMS-9873442, 10/15/1998-9/30/2001. Title "*KDI: New Algorithms, Architectures and Science for Data Mining of Massive Astrophysics Sky Surveys.*" PIs: Andrew W. Moore, Robert C. Nichol; coPIs: Christos Faloutsos, Peter L. Spirtes, Larry A. Wasserman. \$1,600,000.

19. INTEL equipment grant, 1/1999. 3 Pentium machines with monitors. Total list price: \$21,675.
20. NEC gift, 12/1998. Title: *"Multi-Dimensional Indexing for Information Warehouse"*. Amount: \$10,000.
21. NSF, number IIS-98-17496. Title: *"Informedia-II: Integrated Video Information Extraction and Synthesis for Adaptive Presentation and Summarization from Distributed Libraries"*. 5/1/99-04/30/03 PI: Howard Wactlar; Senior personnel: Michael Christel, Christos Faloutsos, Alex Hauptmann, Takeo Kanade. Amount: \$4,000,000.
22. NSF, number IIS-9910606 Title *SGER: Fractals for Spatial and Temporal Databases* PI: Christos Faloutsos. 9/15/1999-8/31/2001 Amount: \$100,000.
23. DARPA Title *"CONSTELLATION: A Scalable Metrology to Support Theory and Practice of Anomalous-Event Detection"* 8/1/1999 - 7/31/2002. PI: Roy Maxion, Senior personnel: David Banks, Jeffery Hansen, Christos Faloutsos, Karl Levitt, Tom Mitchell, Daniel Siewiorek. Amount: \$1,985,858.
24. NSF, number IIS-9988876. Title: *CNPq: IMiMD-Indexing and Data Mining in Multimedia Databases*. PI: Christos Faloutsos. Starting: 9/15/2000, for 3 years. Amount: \$200,000.
25. DARPA, contract number N66001-00-1-8936. Title: *Analysis and Simulation of the Internet Topology and its Fault-Tolerance* PI: Michalis Faloutsos. Starting: 7/2000, for 3 years. Subcontractor: Christos Faloutsos (CMU)
26. NSF, number IIS-0083148 Title: *Collaborative Research: Data Mining Meets I/O Performance Evaluation: Advanced Statistical Tools for Analyzing Bursty Traffic* PIs: Christos Faloutsos, Ngai Hang Chan, Tara Madhyastha. Amount for CMU: \$420,000. Starting: 9/1/2001, for 3 years.
27. NSF, number IIS-0113089. Title: *A Knowledge Discovery Framework for Civil Infrastructure Contexts* PI: James H. Garrett. Co-PIs: Christos Faloutsos, Sue McNeil. Starting: 2/1/2001, for 3 years. Amount: \$241,263.
28. NLM, Grant number 2 R44 LM06520-02A1 Title: *A Bayesian Textual and Multimedia Information Retrieval Engine* PI: Giovanni Marchisio (Insightful). Duration: 9/30/2001-2/29/2003. Amount: \$749,224. (CMU portion: \$8,000).
29. NSF IIS-0209107 Title: *Collaborative Research: NetMine: Finding Patterns in Network Data* PIs: Christos Faloutsos (CMU); Michalis Faloutsos (UCR) Duration: 9/1/2002-8/31/2005. Amount: \$240,000 (CMU portion: \$120,000).
30. NSF, IIS-0205224 Title: *Providing Intuitive Access to Human Motion Databases* PIs: Jessica Hodgins, Amy Bruckman, Christos Faloutsos, Nancy Pollard, Randy Pausch Duration: 9/1/2002-8/31/2004. Amount: \$510,000.
31. Intel Corporation, Equipment grant Title: *Sensor Network Data Mining* PI: Christos Faloutsos Date: Feb. 2003. Amount: \$52,910.
32. PITA/ICES Title: *Automatic Mining on Sensor Data* PIs: Christos Faloutsos, Phil Gibbons Duration: 2003-2004 Amount: \$39,079
33. NSF, BES-0329549. Title: *SENSORS: Placement and operation of an environmental sensor network to facilitate decision making regarding drinking water quality and security* PI: Jeanne VanBriessen Co-PIs: Anastassia Ailamaki, Paul Fischbeck, Christos Faloutsos and Mitchell Small. Duration: 09/01/03-8/31/06. Amount: \$958,000.00
34. NSF/INT/EAP 03-18547 Title: *Semantic Integration of Stream Data: A Data Mining-based Approach* PI: Christos Faloutsos, Phil Gibbons, Natassa Ailamaki. Duration: Sept 1, 2003 - Aug 31, 2005. Amount: \$15,780
35. NSF ITR 03-31697 (large ITR) *ITR: Next Generation Bio-Molecular Imaging and Information Discovery* PI: B. Manjunath et al (UCSB); Robert Murphy et al. (CMU) (C. Faloutsos: Senior Personell) Amount: \$3,869,943 Duration: Oct. 1 2003 - Sept. 30, 2008.
36. NSF ITR (medium ITR) 03-26322 *ITR Collaborative Research: Indexing, Retrieval, and Use of Large Motion Databases* PIs: Christos Faloutsos, Jessica Hodgins, Amy Bruckman, Nancy Pollard, Randy Pausch Duration: 3/15/2004 - 2/28/2006. Amount: \$706,000.

37. PITA/ICES Title: *Tools for Mining Large Graphs* PI: Christos Faloutsos Duration: 10/1/2004 - 12/31/2005. Amount: \$62,243.
38. HP equipment donation *ProLiant DL585R01 server*, Four 2.8GHz Opteron processors, 32Gb memory, 1.4Tb disk. Amount: \$49,908. Date: Jan. 30, 2006.
39. PITA/ICES Title: *Distributed Mining in Co-evolving Streaming Sensor Data* PI: Christos Faloutsos Duration: 9/2005-9/2006 Amount: \$64K
40. NSF, IIS-0534205 Title: *CISE/IIS: Finding Patterns and Anomalies in Large Time-Evolving Graphs* PI: Christos Faloutsos Duration: 4/15/2006-3/31/2009 Amount: \$337,590.
41. IBM Faculty Award, 2006. PI: Christos Faloutsos. Amount: \$30,000.
42. Lawrence Livermore National Laboratory (LLNL), Contract No. B526511. Title: *Prediction on Time-Evolving Complex Networks* Duration: 09/01/06 - 09/30/07 Amount: \$156,015
43. Yahoo! Research Alliance gift Title: *Analysis and Mining of the Query and Answer System of Yahoo* Duration: 2006-2007. Amount: \$75,000.
44. PITA/ICES Title: *Influence Propagation in Large Blog Graphs* PI: Christos Faloutsos Duration: Sept. 2006 - May 2008. Amount: \$52,489.
45. NSF Grant No. CNS-0721736 "Collaborative Research: NeTS-NBD: RIDR: Towards Robust Inter-domain Internet Routing: Measurements, Models, and Deployable Tools" PI: Faloutsos Duration: Aug. 2007 - July 2010. Amount: \$245,000.
46. IBM Faculty Award, 2007. PI: Christos Faloutsos. Amount: \$30,000.
47. NSF Grant No. IIS-0705359 *III-COR: Collaborative Research: Mining Biomedical and Network Data Using Tensors* PI: Faloutsos (co-PI: Vassileios Megalooikonomou, Temple University) Duration: 09/15/07- 08/31/10. Amount: \$307,985
48. NSF Grant No. DBI-0640543 *Indexing, Mining and Modeling Spatio-Temporal Patterns of Gene Expressions* Eric Xing (PI) and Christos Faloutsos (co-PI). Duration: 08/15/2007 - 07/31/2010. Amount: \$1,331,995.
49. Gift from SPRINT (Dr. Jean Bolot). Starting date: 2007. Amount: \$52,000.
50. Lawrence Livermore National Laboratory (LLNL), Contract No. B573265. Title: *Mining Large Time-Evolving Graphs* Duration: 03/01/07 - 09/30/08 Amount: \$90,387
51. NSF Grant No. IIS0808661 *III-CXT: Collaborative Research: Interactive and Intelligent Searching of Biological Images by Query and Network Navigation with Learning Capabilities* (co-PIs: Eamonn Keogh, James Baldwin, Paul De Ley, Michalis Faloutsos, Amit K. Roy Chowdhury, UC Riverside; Eyuaem B. Abebe, Elizabeth City State Univ.). Duration: 8/1/2008-7/30/2011. CMU Amount \$149,399.
52. Lawrence Livermore National Laboratory (LLNL), Contract No. B579447 Title: *Mining Large Time-Evolving Graphs* Duration: 12/02/2008 - 09/30/2009 Amount: \$50,000.
53. IBM Faculty Award, 2008 PI: Christos Faloutsos. Amount: \$20,000.
54. Lawrence Livermore National Laboratory (LLNL), Contract No. B580840 Title: *Trend and Anomaly Detection in Network Traffic Data* Duration: 2/1/2009-09/30-2009 Amount: \$100,000.
55. Google grant, Title: *Discovering Patterns and Detecting Anomalies in Large Graphs* Duration: 2009-2010. Amount: \$70,000
56. Fujitsu Laboratories gift, 2009. Amount: \$35,000.
57. NRO/SAIC Title *Director's Innovative Initiative* Duration: Aug. 2009 - Jan. 2010. Amount: \$95,287
58. IBM Faculty Award, 2009 PI: Christos Faloutsos. Amount: \$40,000.
59. Lawrence Livermore National Laboratory (LLNL), Contract No. B588309 *Immunization and Mining of Large Cyber Networks* Duration: 02/22/2010 - 12/31/2010 Amount: \$100,000
60. Lawrence Livermore National Laboratory (LLNL), *Link-strength estimation in time-evolving graphs* Amount: \$50K Duration: 9/2009 - 9/2010

61. Google gift *Wordly Knowledge* (with William Cohen, Tom Mitchell and Garth Gibson) Amount: \$1,000,000 Duration: 2010-2012
62. Google gift (renewed) *Wordly Knowledge* (with William Cohen and Tom Mitchell) Amount: \$500,000 Duration: 2012-2013
63. DARPA Contract no.: W911NF-09-2-0053 (ARL: CTA-INARC) *Information Network Academic Research Center: an Integrated Approach towards Information Integration, Modeling, Retrieval and Discovery* Total: \$16.75M; CMU Amount: \$650,000. Duration: 9/2009 - 8/2013.
64. Gordon and Betty Moore Foundation gift. *eScience via data-intensive computing for astrophysics* (with Garth Gibson and Peter Lee). Total amount: \$754,660. Duration: 9/3/2009 - 4/30/2012
65. NSF Grant number 1017415 *III: Small: Influence and Virus Propagation in Large Graphs - Theory and Algorithms* Total: \$499,682. Duration: Sept. 2010 - Aug. 2012
66. NSF Grant number 0970179 EAGER: Network Pattern Recognition Project Total: \$299,982 PI: Lew Lancaster (UCB) (CMU has sub-contract). Duration: Sept. 2010 - Aug. 2011
67. DARPA contract number HDTRA1-10-1-0120 *Robustness Analysis and Anomaly Detection of Interdependent Physical and Social Networks*. Defense Threat Reduction Agency (DTRA). Total amount: \$1,062,000. CMU amount: \$240K. PIs: Abdelzaher, Eliassi-Rad, Faloutsos, Han. Duration: October 2010 - October 2013.
68. LLNL contract number B594252 *Mining Large, Time-Evolving Data for Cyber Domains* Total: \$85,000. Duration: Jan. 2011 - Sept. 2011
69. DARPA (sub-contract to SAIC) Prime Number: W911NF-11-C-0088 Sub Award Number: P010089633 *Anomaly Detection at Multiple Scales (ADAMS)* CMU part: \$482,135 Duration: 08/22/2011 - 05/30/2013.
70. DARPA (sub-contract to Leidos) Prime Number: W911NF-11-C-0088 Sub Award Number: P010089633 *Anomaly Detection at Multiple Scales (ADAMS) Phase II* Duration: 6/17/2013-05/30/2015. CMU part: \$556,178.
71. DARPA (subcontract to IBM) *Understand and Utilize Context-Aware Information Dissemination in Social Media* Amount: \$46K (CMU part); Duration: 01/01/12 - 12/31/14.
72. NSF IIS-1217559 CGV: *Small: Making Sense out of Large Graphs - Bridging HCI with Data Mining* (with Aniket Kittur). Amount: \$500K; Duration: 09/15/2012 - 8/31/2015.
73. NSF IIS-1247489, NIH 1R01GM108339-1: *BIGDATA: Mid-Scale: Data Collaborative Research: Big Tensor Mining: Theory, Scalable Algorithms and Applications* (with Tom Mitchell; and UMN: Nikos Sidiropoulos, George Karypis). Amount: \$894,892 to CMU, (\$1.6M total). Duration: Dec. 1, 2012 - Nov. 30, 2016.
74. NSF Award No. CNS-1314632 TWC: *Medium: Collaborative: Know Thy Enemy: Data Mining Meets Networks for Understanding Web-Based Malware Dissemination* Amount: \$333,333 to CMU (\$1M total). Duration: 9/1/2013 - 8/31/2017.
75. Lawrence Livermore National Laboratory (LLNL), Contract number 30788.1.1990222 *Data Science Initiative University Outreach Project: Quantification and Attribution of Network Changes*. Amount: \$30K. Duration: June 2013 - Sept. 2013.
76. Lawrence Livermore National Laboratory (LLNL), *Graph Understanding and Fraud Detection* Amount: \$70K Duration: Jan. 2014 - Sept. 2014.
77. NSF Award No. IIS-1408924 *III: Medium: Collaborative Research: Collective Opinion Fraud Detection: Identifying and Integrating Cues from Language, Behavior, and Networks* (Collaborative with Profs. Leman Akoglu (Stonybrook), and Bing Liu (UIC)). Amount: \$299,908 to CMU (\$1.2M total). Duration: 9/1/2014 - 8/31/2018
78. NSF Award No. IIS-1408924 (REU Supplement) Amount: \$8K Duration: 9/1/2014 - 8/31/2018 (same as base award).
79. Yahoo FREP gift. Amount: \$10,000. Duration: 9/1/2014-9/1/2015.

80. NSF Award No. DBI-1356505 Amount: \$279K *ABI Innovation - Collaborative Research: BCSP: Understanding the design and usage of distributed biological networks* (PI: Ziv Bar-Joseph) Duration: 09/01/2014-08/31/2017
81. PNC Center for Innovation Award, No. PF15003 Amount: \$38,380; 2016. Under final negotiations for renewal, at \$70,000, for 2017. *Fraud Detection in Financial Data* Duration: Dec. 2015 - Dec. 2016.
82. Boeing Amount: \$187,918 *Sensor summarization via matrix/tensor analysis* Duration: Sept. 2015 - Sept. 2016; renewed for 2017.
83. Flipkart. Amount: \$25,000. Faculty Research Funding - unrestricted.
84. Portuguese Science and Technology Foundation - AIDA grant. Amount \$175,000, 3 years, Sept. 2019 - Aug. 2022.
85. Portuguese Science and Technology Foundation - TAMI grant. 3 years, April 2020 - March 2023.
86. Award Number: 54408278001; Pennsylvania Infrastructure Technology Alliance (PITA); 01/01/2020 - 05/31/2021.
87. Innovu gift. Amount: \$25K. March 2020.

FELLOWSHIPS AND AWARDS

1. Graduate Research Board Summer Research Award 1987: \$4,000.
2. 1989 Presidential Young Investigator Award (PYI) - NSF IRI-8958546. Title: *Access methods for large multimedia databases* \$125,000 for 5 years; up to \$500,00 with matching funds.
3. 1998-2001: Litton Fellow, Computer Science Department, Carnegie Mellon University. Amount: \$10,000 per year.
4. 2006: *Research Contribution Award*, in the Int. Conference on Data Mining (ICDM), Hong Kong, China, December 2006.
5. 2010: *Innovations Award*, in ACM SIGKDD, Washington DC, USA, Aug. 2010.
6. 2010: ACM Fellow
7. 2012: Honorary PhD from Aristotle University of Thessaloniki, Greece.
8. 2018: *Distinguished Contribution Award*, in PAKDD, Melbourne, Australia, June 2018.
9. 2019: AI Tang fellowship (CSD, CMU)
10. 2020: Fredkin Professorship in Artificial Intelligence.

BEST PAPER AWARDS

1. Award for *Best paper: Integration with theory*, in ACM SIGMOD 1994. (Christos Faloutsos, M. Ranganathan and Yannis Manolopoulos *Fast Subsequence Matching in Time-Series Databases* Proc. ACM SIGMOD, Minneapolis MN, May 25-27, 1994)
2. **1997 VLDB 10 Year Ago Paper Award** (Timos Sellis, Nick Roussopoulos and Christos Faloutsos *"The R+-Tree: A Dynamic Index for Multi-Dimensional Objects"*, VLDB 1987, pp. 507-518
3. *Best Paper Runner-Up Award*, in KDD 2001 (Zhiqiang Bi, Christos Faloutsos and Flip Korn *The "DGX" Distribution for Mining Massive, Skewed Data* KDD 2001, San Francisco, CA, August 2001).
4. *Best student paper Award*, in Performance 2002 (Mengzhi Wang, Anastassia (Natassa) Ailamaki and Christos Faloutsos *Capturing the spatio-temporal behavior of real traffic data* IFIP Int. Symp. on Computer Performance Modeling, Measurement and Evaluation, Rome, Italy, Sept. 2002
5. *Best student paper Award* Jia-Yu Pan, Christos Faloutsos, Masafumi Hamamoto and Hiroyuki Kitagawa *AutoSplit: Fast and Scalable Discovery of Hidden Variables in Stream and Multimedia Databases* PAKDD, Sidney, Australia, May 2004.
6. *Best research paper Award*: Jure Leskovec, Jon Kleinberg and Christos Faloutsos *Graphs over Time: Densification Laws, Shrinking Diameters and Possible Explanations* KDD 2005, Chicago, IL, Aug.

Jodi L. Forlizzi

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as of 1/1/21

Education

Ph.D., Design in Human-Computer Interaction, Carnegie Mellon University, 2007. Advisors: Sara Kiesler and Pamela J. Hinds. Thesis: Product Ecologies: Understanding the Context of Use Surrounding Products.

MDes, Interaction Design, Carnegie Mellon University, 1997. Advisors: Richard Buchanan and Suguru Ishizaki. Thesis: Designing for Experience: An Approach to Human-Centered Design.

BFA, Illustration, Philadelphia College of Art, Philadelphia, PA.

Employment

Geschke Director and Professor, Human Computer Interaction Institute and School of Design, Carnegie Mellon University, November 2017–present.

Diversity, Equity, and Inclusion Lead, School of Computer Science, 2019–.

Co-Chair, Campus Task Force on Climate, October 2018–October 2019.

Professor, Human Computer Interaction Institute and School of Design, Carnegie Mellon University, July 2014–November 2017.

Associate Professor, Human Computer Interaction Institute and School of Design, Carnegie Mellon University, July 2007–June 2014.

Assistant Professor, Human Computer Interaction Institute and School of Design, Carnegie Mellon University, January 2000–June 2007.

Co-founder, Pratter.us. Co-founder of a healthcare startup publishing outpatient healthcare costs.

Innovator and Project Manager, E-Lab LLC, Chicago, IL 1998–1999. Specialize in research for new product design. Oversee research and design planning, innovating design processes and practices, and developing business proposals for a variety of application areas.

Design Researcher, Novum Design Center, Carnegie Mellon University, 1996–1997. Conceive of, design and execute research funded by Intel and Microsoft.

Founder, Inks Creative Services, Philadelphia, PA, 1986-1996.
Co-owner and principal of a design and photography firm serving the Delaware Valley.

Information Designer, School of Engineering and Applied Science, University of Pennsylvania, 1985-1995.

Consultant Experience

Interaction Designer, 1997-present

Interface and interaction design, as well as project management, usefulness and usability testing, strategizing for and managing interdisciplinary design teams.

Clients include: Walmart, Bossanova Robotics, Sheetz, Disney Research, Willow Garage, Vocollect, SDLC Partners, General Motors, BodyMedia, Intelligent Healthcare Systems, University of Pennsylvania School of Engineering, University of Pennsylvania Law School, University of Pennsylvania Linguistic Data Consortium, Lutron Corporation.

Publication List

Books

[1] Forlizzi, J. (in review). Product Service Ecologies: A Systems Approach to Interaction Design. MIT Press.

[2] Cosley, D., Churchill, E., Forlizzi, J., and Munson, S.A. (2017). Introduction to This Special Issue on the Lived Experience of Personal Informatics. *Human-Computer Interaction* 32, 5/6, 197-207.

[3] Odom, W., Zimmerman, J., Forlizzi, J. (2016). Engaging teens in dialogue on potential technological futures with user enactments. In Eds. Linda Little, Daniel Fitton, Beth Bell, and Nicola Toth. *An HCI Perspective on Working with Teenagers in Research Projects*. London, UK: Springer HCI Series.

[4] Holmquist, L. E., and Forlizzi, J. (2014). Introduction to Journal of Human-Robot Interaction Special Issue on Design. *Journal of Human-Robot Interaction*, 3/1, 1-3.

[5] Special Issue on Design for Wellbeing, Eds. Pieter Desmet, Jodi Forlizzi, and Anna Pohlmeier. *International Journal of Design*, 7/3, December, 2013. <http://www.ijdesign.org/ojs/index.php/IJDesign/>

[6] Forlizzi, J. (2003). *Proceedings of the International Conference on Designing Pleasurable Products and Interfaces*, Ed. Jodi Forlizzi. New York, NY: ACM Press.

Other Academic Review Committees

Dissertation Committee, Carlijn Valk, Industrial Design, Technical University Eindhoven, 2020.

Dissertation Committee, Sander Bogers and Janne van Kollenburg, Industrial Design, Technical University Eindhoven, 2019.

Dissertation Committee, New Jersey Institute of Technology, (Richard Schuler), 2017.

Dissertation Committee, NYU, (Junius Gunaratne), 2017.

Dissertation Opponent, Department of Informatics, University of Umea (Fatemeh Moradi), 2017.

Dissertation Opponent, Department of Design, University of Umea (Tara Mullaney), 2016.

Dissertation Committee, I-School, University of Michigan (Rayoung Yang), 2015.

Dissertation Committee, Human Engineering, University of Pittsburgh (Jing/Jenny Wang), 2014.

Dissertation Committee, Industrial Design, University of Montreal, (Annemarie Lesage), 2014.

Dissertation Committee, Computer Science, University of Arizona, (Ryan Brotman), 2013.

Dissertation Committee, METU, Ankara, Turkey (Armagan Kuru), 2013.

Dissertation Committee, Georgia Tech (Ja-Young Sung), 2008.

Dissertation Committee, University of Central Florida (Cindy Bethel), 2008.

Dissertation Committee, Georgia Tech (Susan Wyche), 2008.

Dissertation Committee, KAIST (Sona Kwak), 2008.

Dissertation Committee, Heinz School, CMU (Danny Fernandez), 2008.

Dissertation External Evaluator, University of Oulu Computer Science (Leena Arhippainen), 2008.

Dissertation External Evaluator, Helsinki University of Technology (Anu Kankainen), 2002.

Contract and Grant Support

Funded

NSF FW-HTF: Building a Skilled Technological Workforce in the Hospitality Industry. PU with Howie Choset, George Kantor, Chinmay Kulkarni, and Mark Kamlet. September 2020-August 2021.

CMU Block Center: Co-Developing Automation Policy for the Post-COVID Hospitality Industry. Co-I with Sarah Fox and Chinmay Kulkarni. October 2020-September 2021.

NSF CHS: Improving UX Designers' Ability to Envision and Prototype AI Products and Services. Co-I with John Zimmerman. July 2020-June 2023.

Skylight Digital/Air Force STTR: Service Design as Lens for Innovation. Co-I with John Zimmerman. June, 2020.

Accenture: Adapting and Automating “Living” Business Processes. Co-PI with John Zimmerman. October 2019-September 2020.

DOE: Enhancing Student Learning with an Orchestration Tool for Personalized Teacher-Student Interactions in Classrooms Using Intelligent Tutoring Software. Co-PI with Vincent Aleven and Bruce McLaren. July 2018-June 2021.

NSF EAGER: Synthesizing Notes from Electronic Health Records to Make Them Actionable for Heart Failure Patients. Co-PI with John Zimmerman and Carolyn Rosé. September 2017-August 2019.

NSF NNA: Workshop on New Technologies for Navigation in Arctic Regions. Co-PI with David Wettergreen and George Kantor. October 2017-September 2019.

US Army: Leveraging Advanced Algorithms, Autonomy, and Artificial Intelligence (A4I) to Enhance National Security and Defense. Co-I with Martial Hebert, Herman Herman, and Jessica Hodgins, September 2018-August 2023.

Google: Collaborating with Ubiquitous Intelligent Agents and Robots PI, September 2019-August 2020.

Bloomberg: How Analysts work with UX and AI. Co-PI with John Zimmerman, January 2019-December 2020.

Pending

AI Institute: Planning: Institute for Collaborative Assistance and Responsive Interaction for Networked Groups: CARING. CMU, Georgia Tech, Oregon State. August 2021 – July 2026.

NSF HCC-M: Centering Bias-Awareness in the Design of AI Systems for High-Stakes Decision-Making. Co-I with Motahhare Eslami, Alexandra Chouldechova, and John Zimmerman. July 2021-June 2025.

NSF ERC: Planning: NSF Engineering Research Center for a New Species of Engineer: Hybrid Intelligence Based on Research in Engineering Teams (HIBRET). CMU, UC Berkeley, Howard University, Penn State University.

Metro 21: Developing Data Collection Systems to Support Community-Driven Mobility Services. Co-I with Patrick Carrington, Sarah Fox, and Nikolas Martelaro. July 2021-June 2022.

Metro 21: Driver’s Seat: Interrogating and Designing the Shifting Role of Transit Work Amid Increasing Autonomy. Co-I with Sarah Fox, Nikolas Martelaro, and Patrick Carrington. July 2021-June 2022.

DOE: Improving Student Learning and Engagement Through Game and Learning Analytics. Co-I with Bruce McLaren. July 2021-June 2024.

Past

Electronic Sandbox for Teaching Financial Literacy to Children and Their Parents, Part 2. Forlizzi and Zimmerman. PNC Financial Services, 2016-2017.

HMI for IMMS and 6DOF Robots, October 2015-September 2016. Bourne and Forlizzi. Sepro Robotique.

Electronic Sandbox for Teaching Financial Literacy to Children and Their Parents. Forlizzi and Zimmerman. PNC Financial Services, 2015-2016.

Studying the long-term acceptance of personal health informatics tools. Karapanos and Forlizzi. MITI Early Bird Grant, 2015.

Online Design Education: Taking Design Education and Critiques Online. Scupelli, Forlizzi, Dow, Kelliher, Christal, Hammer. Simon Seed Initiative, 2015-2016.

Online Design Education: Developing Playtest Skills in Hybrid Game Design Environments. Hammer, Forlizzi, Christel. Simon Seed Initiative, 2014-2015.

Shared Attention in Human-Robot Collaboration. Google Grant, Co-PI with Sidd Srinivasa, March 2014-March 2015.

Enhancing Math Education with Educational Games: Can Erroneous Examples Help? NSF TSL, co-PI with Bruce McLaren, September 2013-August 2015.

Value Construction with Digital Things. Vodafone Grant, co-PI with John Zimmerman, with University of Granada and KAIST: Korea Advanced Institute of Science and Technology, March 2012-February 2013.

Manifesting Virtual Possessions in the Material World. Google Grant, Co-PI with John Zimmerman, September 2011-August 2012.

Physical Interaction with Dynamically Stable Mobile Robots. NSF CPS, Co-PI with Ralph Hollis, August 2011-July 2014.

ANTIDOTE: Adaptive Networks for Threat and Intrusion Detection or Termination. MURI, submitted with Gaurav Sukhatme, Sven Koenig, Maja Mataric (USC), Daniela Rus (MIT), Vijay Kumar, Robert Ghrist, Maxim Likhachev (Penn), Manuela Veloso, Howie Choset, and Tony Stentz. March 2009-February 2013.

Extending Skills of Elderly Drivers. General Motors Gift, Co-PI with Anind Dey, November 2009-October 2010.

Interaction Design for the HERB Robot. Quality of Life Technology Research Grant, PI, September 2009-October 2010.

Situational Awareness of Older Drivers. Quality of Life Technology Research Grant, co-PI with Anind Dey, October 2008-September 2009.

Snackbot: A Service Robot. Microsoft Robotics Initiative Grant, co-PI with Sara Kiesler, May 2008-April 2009.

Quality of Life Technology Center. NSF ERC, June 2009-May 2014.

A Study of Navigation in Dyads. General Motors Gift, PI, May 2008-April 2009.

Enabling Creativity Using Kinetic Typography. NSF SGER, co-PI with Scott Hudson, September 2008-August 2009.

Enhancing the Value of Mobile Computing Platforms with Techniques for Inattentive and Inexact Interaction. Intel Corporation Research Grant, co-PI with Scott Hudson, September 2007-August 2010.

Aesthetics of Dashboard Display Designs. General Motors, PI, September 2007-August 2008.

Human Dynamics of Robot-Supported Collaborative Work. NSF DHB, Co-PI with Sara Kiesler, Jessica Hodgins, and Sue Fussell, December 06-November 09.

Navigation Display Format Design Optimization. General Motors Corporation, PI, September 06-August 07.

Monitoring and Feedback To Support Physical Exercise Awareness. PA State Funding, Co-PI with Anind Dey, January 06-December 06.

Monitoring and Feedback to Support Physical Exercise Awareness. PITA, PI, with Anind Dey.

Managing Human Attention. NSF ITR, submitted with Robert Kraut and Scott Hudson, September 04-August 07.

Physiological Body Monitors to Prevent Falls in the Aging Population. PITA, PI, submitted with Scott Hudson and Francine Gemperle, December 02-November 03.

Cognitive and Social Design of Assistive Robots. NSF/ITR-PE, Co-PI, submitted with Sara Kiesler, Pamela Hinds, and Sebastian Thrun, September 01-August 06.

Situationally Appropriate Interfaces. NSF/ITR, submitted with Scott Hudson, Sara Kiesler, and Chris Atkeson, September 01-August 06

Augmented Cognition: Combining Human and Digital Memory. DARPA, senior personnel, submitted with Randy Pausch and Dennis Proffitt, September 01-August 05.

Situationally Aware Systems. Co-investigator, DARPA, February 01-December 01, with Scott Hudson.

Enhancing Small Displays: Using multimodal cues to enhance the communication of information. Co-principal investigator, Oracle Corporation, February 01-June 01, with Sara Kiesler.

Using Palm Devices as Universal Personal Controllers. Co-investigator, Pittsburgh Digital Greenhouse, December 00-November 01, with Brad Myers.

Enhancing Small Displays: Using multimodal cues to enhance the communication of information. Principal investigator, Oracle Corporation, May 00-January 01.

Research on New Interactions for 3G Devices and Modular TV. Co-investigator, Samsung Electronics, December 00-March 01, with Dan Boyarski.

User Experience and Interaction Design. Berkman New Faculty Development Fund, January 00.

Evidence of Teaching Performance

Courses taught at Carnegie Mellon

05-452/652, Service Design, 53 students, Fall 2020.
05-452/652, Service Design, 57 students, Fall 2019.
05-452/652, Service Design, 32 students, Spring 2019.
05-453, Design Perspectives in HCI, 24 students, Spring 2018.
05-898, Service Design, 54 students, Spring 2018.
05-898, Service Design, 34 students, Fall 2017.
05-898, Service Design, 30 students, Spring 2016.
05-898, Service Design, 15 students, Summer 2015.
05-898, Service Design, 36 students, Fall 2015.*
05-392, Interaction Design Overview, 46 students, Fall 2014.
05-392, Interaction Design Overview, 56 students, Spring 2014.*
51-385/785, Designing for Service, 28 students, Fall 2013.
51-385/785, Designing for Service, 28 students, Fall 2012.*
05-774, Design Perspectives in HCI, 20 students, Spring 2012.*
51-702, Graduate Interaction Design Seminar, 10 students, Spring 2012.
05-651, Interaction Design Fundamentals, 15 students, Fall, 2011.*

Phillip B. Gibbons

Curriculum Vitae

gibbons@cs.cmu.edu
<http://cs.cmu.edu/~gibbons/>
May 2022

Research Interests

Research areas include big data, parallel computing, databases, cloud computing, sensor networks, distributed systems, and computer architecture. My publications span theory and systems, across a broad range of computer science and engineering (e.g., conference papers in APoCS, ASPLOS, ATC, ESA, EuroSys, HPCA, ICML, IPDPS, ISCA, ISPASS, MICRO, MLSys, NeurIPS, NSDI, OSDI, PACT, SoCC, SODA, SOSP, SPAA and VLDB since 2015).

Education

- **University of California at Berkeley**, Berkeley, California, 1984–1989.
Ph.D. in Computer Science. Dissertation advisor: Richard M. Karp.
- **Dartmouth College**, Hanover, New Hampshire, 1979–1983.
B.A. in Mathematics. Graduated summa cum laude and Phi Beta Kappa.

Professional Experience

- **Carnegie Mellon University**, Pittsburgh, Pennsylvania.
Professor, Computer Science Department, 2015–present.
Professor, Electrical and Computer Engineering Department, 2015–present.
Principal Investigator (PI or co-PI) for the following research projects:
 - *Prescriptive Memory*: Razing the semantic wall between applications and computer systems with heterogeneous compute and memories.
 - *Foundations of PIM*: Theoretical foundations of emerging processing-in-memory systems.
 - *Asymmetric Memory*: Write-efficient algorithms and systems, for settings (such as emerging non-volatile memories) where writes are significantly more costly than reads.
 - *Big Learning Systems*: Mapping out and exploring the space of large-scale machine learning from a systems’ perspective. Recent focus on geo-distributed learning over non-IID data.
Adjunct Professor, Computer Science Department, 2003–2015.
Adjunct Associate Professor, Computer Science Department, 2000–2003.
Visiting Professor, Computer Science Department, 2000.
- **Intel Labs Pittsburgh**, Pittsburgh, Pennsylvania. Principal Research Scientist, 2001–2015.
Principal Investigator for the Intel Science and Technology Center for Cloud Computing
 - A \$11.5M research partnership with Carnegie Mellon, Georgia Tech, Princeton, UC Berkeley, and U. Washington.
Principal Investigator (PI or co-PI) for the following research projects (partial list):
 - *Hi-Spade*: Hierarchy-savvy parallel algorithm and system design, focusing on high-level locality abstractions, smart runtime thread schedulers, and emerging non-volatile memory technologies.
 - *LBA*: Hardware accelerators for online program correctness checking tools.
 - *Sybil Defenses*: Limiting the impact of malicious users in distributed systems.

- D. M. Kristol, E. Gabber, P. B. Gibbons, Y. Matias and A. Mayer.
Design and Implementation of the Lucent Personalized Web Assistant (LPWA).
Bell Laboratories technical report, Murray Hill, NJ, March 1999.
- P. B. Gibbons and Y. Matias.
Synopsis Data Structures for Massive Data Sets.
Short summary paper in *Proceedings of the 10th ACM-SIAM Symposium on Discrete Algorithms (SODA)*, Baltimore, MD, January 1999, pp. S943–S944.
- P. B. Gibbons, Y. Matias and V. Poosala.
Aqua Project White Paper.
Bell Laboratories technical report, Murray Hill, NJ, December 1997.
- P. B. Gibbons.
What Good Are Shared-Memory Models?
In *Proceedings of the 1996 ICPP Workshop on Challenges for Parallel Processing*, Bloomington, IL, August 1996, pp. 103–114, invited position paper.
- P. B. Gibbons et al.
A Survey of Query Processing Techniques with Recommendations for the Teradata Database.
AT&T Bell Laboratories technical report, Murray Hill, NJ, December 1995.
- P. B. Gibbons.
Bootstrapping HPC into Mainstream Computing.
In *Suggesting Computer Science Agendas for High Performance Computing*, U. Vishkin (Ed.), ACM, 1994, invited position paper.
- P. B. Gibbons.
The Asynchronous PRAM: A Semi-Synchronous Model for Shared Memory MIMD Machines.
Ph.D. thesis, Computer Science Division, University of California at Berkeley, CA, December 1989.
- P. B. Gibbons.
Towards Better Shared Memory Programming Models.
In *Opportunities and Constraints of Parallel Computing*, J. L. C. Sanz (Ed.), Springer-Verlag, Proceedings of the 1988 IBM-NSF Workshop, December 1989, pp. 55–58, invited position paper.

Grants and Gifts

- Oracle Labs, *End-to-End Compiler Optimization of Data Movement Across Modern Fragmented Software Stacks*
Todd Mowry, Phillip Gibbons, \$83,250
Gift, June 2021
- National Science Foundation, *Prescriptive Memory: Razing the Semantic Wall Between Applications and Computer Systems*
Phillip Gibbons (PI), Henny Admoni, Nathan Beckmann, Franz Franchetti, Jessica Hodgins, \$250,000
October 2020 – September 2022
- Oracle Labs, *End-to-End Compiler Optimization of Data Movement Across Modern Fragmented Software Stacks*
Todd Mowry, Phillip Gibbons, \$83,250
Gift, May 2020
- VMware University Research Fund, *Prescriptive Memory*
Phillip Gibbons, \$75,000
Gift, January 2020

- National Science Foundation, *Parallel Models and Algorithms for Emerging Memory Systems*
Guy Blelloch, Phillip Gibbons, \$1,200,000
October 2019 – September 2023
- National Science Foundation, *Multicore to Wide Area Analytics on Streaming Data*
Phillip Gibbons \$492,000
July 2017 – July 2021
- Intel Corporation, *Intel Science and Technology Center for Visual Cloud Systems*
Senior Personnel, \$4,125,000
September 2016 – August 2019
- Facebook Research Grant
Phillip Gibbons, \$30,000
Gift, September 2015
- National Science Foundation, *Write-Efficient Parallel Algorithms for Emerging Memory Technologies*
Guy Blelloch, Phillip Gibbons, \$845,000
September 2015 – August 2019

While an employee of Intel, I participated in the following grants (as a no cost or unofficial co-PI):

- National Science Foundation, *Parallelism without Concurrency*
Charles Leiserson, Guy Blelloch, Jeremy Fineman, Phillip Gibbons, \$2,428,662
July 2013 – June 2017
- Intel Corporation, *Intel Science and Technology Center for Cloud Computing*
Co-PI with Gregory Ganger, \$11,500,000
September 2011 – August 2016
- National Science Foundation, *Locality with Dynamic Parallelism*
Guy Blelloch, Phillip Gibbons, \$449,055
June 2010 – June 2013
- PITA ICES FY06-D, *Distributed Mining in Co-Evolving Streaming Sensors*
Christos Faloutsos, Phillip Gibbons, \$64,000
January 2006 – December 2006
- PITA ICES FY03-21, *Automatic Mining on Sensor Data*
Christos Faloutsos, Phillip Gibbons, \$39,079
November 2003 – December 2004

Patents

Issued patents, filed by AT&T or Lucent Technologies:

1. P. B. Gibbons.
Distinct Sampling System and a Method of Distinct Sampling for Optimizing Distinct Value Query Estimates.
U.S. Patent 7,047,230. Issued May 16, 2006.
2. S. Acharya, P. B. Gibbons, V. Poosala and S. Ramaswamy.
Join Synopsis-Based Approximate Query Answering.
U.S. Patent 6,912,524. Issued June 28, 2005.
3. S. Chen, P. B. Gibbons and T. C. Mowry.
System and Method for Improving Index Performance through Prefetching.
U.S. Patent 6,772,179. Issued August 3, 2004.

GARTH GIBSON

Associate Professor

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Dept of Electrical and Computer
Engineering
Carnegie Mellon University
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E-mail:

garth.gibson@cs.cmu.edu



on leave from CMU to act as

**Co-Founder and Chief
Technology Officer**

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E-mail:

garth.gibson@panasas.com

RESEARCH STATEMENT

My research is centered on

Mor Harchol-Balter

Computer Science Department
Carnegie Mellon University
Pittsburgh, PA 15213
harchol@cs.cmu.edu; (412) 268-7893
www.cs.cmu.edu/~harchol

RESEARCH AREAS

Design and performance analysis of computer systems including both theory and implementation:

Algorithmic Work: Designing and analyzing algorithms for: resource allocation, task/job scheduling, load sharing, routing, cycle stealing, replication, power-management, multi-class/multi-server scheduling, multi-core parallel scheduling, fairness. Correlated arrival processes, and analysis under high-variability workloads. Known for “*All-Can-Win Theorem*”, demonstrating that scheduling policies which are biased towards favoring small jobs can also be preferable to large jobs.

Stochastic Analysis & Queueing Techniques: Developing new methods for stochastic analysis. Examples include: (i) *Recursive Dimensionality Reduction (RDR)*, a technique that allows one to reduce a Markov chain that grows unboundedly in many dimensions to a Markov chain that grows unboundedly in only one dimension, by using the idea of busy period transitions; (ii) *Recursive Renewal Reward (RRR)* and *Clearing Analysis on Phases (CAP)*, techniques that allow one to obtain closed-form solutions for many one-dimensional infinite repeating Markov chains, including the M/M/k with setup chain; (iii) *Exact analysis of Replication Systems*: the first exact solution (in product-form) for replication systems, involving any number of servers, and number of classes, and any degree of replication. (iv) *SOAP Analysis of Scheduling Policies*: the first exact response time analysis of a huge class of scheduling policies with no prior analysis, including Gittins Index, for optimal scheduling when job sizes are unknown. (v) *Optimal Scheduling for Multi-server systems*: first algorithms and analysis for optimal scheduling in the M/G/k, both with known and unknown job sizes.

Systems implementation: Resource management in data centers and other distributed systems. Implementation of QoS tail latency guarantees for flows in networked storage systems, based on techniques from Stochastic Network Calculus (PriorityMeister and SNC-Meister). Online scheduling of jobs with heterogeneous preferences in data centers with heterogeneous servers (TetriSched). Dynamic power management in multi-tier data centers (AutoScale). Scheduling of Memory Controllers (ATLAS). Pricing and queueing optimizations for cloud services. Kernel-level connection scheduling in Web servers (SyNC). Coping with transient overload in Web servers. QoS for e-commerce applications involving the backend database. Prioritization mechanisms for OLTP transactions in database servers. Job scheduling in supercomputing centers.

Modeling and Workload characterization: Known for discovery of Pareto heavy-tailed distribution of UNIX process CPU lifetimes. Statistical characterization of workloads including UNIX processes, web, OLTP, supercomputing, memory workloads, and parallel jobs.

EMPLOYMENT

2020 - pres Bruce J. Nelson Professor in Computer Science. Computer Science Department. Carnegie Mellon University.

2014 - pres Full Professor. Computer Science Department. Carnegie Mellon University.

2012 - 2014 Associate Professor. Computer Science Department. Carnegie Mellon University.

2008 - 2011 Associate Professor and Associate Department Head.
Computer Science Department, Carnegie Mellon University.

2005 - 2008 Associate Professor without tenure. Computer Science Department. Carnegie Mellon University.

1999-2005 McCandless Assistant Professor. Computer Science Department. Carnegie Mellon University.

1996-1999 NSF Postdoctoral Fellow. Massachusetts Institute of Technology.
Funded by: NSF Postdoctoral Fellowship in the Mathematical Sciences.
Mentor: Prof. Tom Leighton.

EDUCATION

1990-1996 University of California, Berkeley.
Ph.D. in Computer Science, August 1996.
Thesis: *Network Analysis without Exponentiality Assumptions*.
Advisor: Prof. Manuel Blum. Committee: Manuel Blum, Sheldon Ross, Venkat Anantharam.

1984-1988 Brandeis University, Waltham, Massachusetts.
B.A. in Computer Science and Mathematics, May 1988. Summa Cum Laude.
Thesis: *Evaluation of Data Encryption Standard Using Walsh-Hadamard Matrix Factorization*.
Advisor: Prof. Martin Cohn.

HONORS

2022 Keynote Speaker: International Teletraffic Congress (ITC 2022)
2022 Keynote Speaker: Matrix Analytic Methods Conference (MAM 2022)
2021 Keynote Speaker: Ubiquitous Computing, Electronics & Mobile Communications (UEMCON 2021)
2021 Distinguished Lecture Series Speaker: Penn State, Computer Science Department.
2021 Keynote Speaker: Data-Driven Queueing Challenges (DDQC 2021)
2021 ACM SIGMETRICS 2021 Best Paper Award.
2021 Second Inaugural Speaker: Scheduling Seminar
2021 Plenary Speaker: STOC Theory Fest Short Plenary Pick, STOC 2021.
2020 Google Faculty Award.
2020 ACM SIGMETRICS 2020 Best Video Award.
2020 Bruce J. Nelson Endowed Chair in Computer Science
2019 ACM SIGMETRICS 2019 Best Student Paper Award.
2019 Keynote Speaker: Queueing Theory and Network Applications (QTNA 2019).
2019 Ruth and Joel Spira Outstanding Teaching Award.
2019 Fellow of IEEE.
2018 IFIP PERFORMANCE 2018 Best Student Paper Award.
2018 Keynote Speaker: Young European Queueing Theory Conference (YEQT 2018).
2018 APS Best Student Paper Award Finalist.
2018 Microsoft Faculty Award.
2018 Distinguished Lecture Series Speaker: UCSD, Computer Science Department.
2018 Distinguished Speaker: Information Modeling and Control of Complex Systems Workshop (IMaCCS 2018)
2018 Plenary speaker at Dutch Queueing Colloquium 40th Anniversary.
2018 Fellow of ACM.
2017 Keynote Speaker: MIT LIDS Student Conference.
2016 Keynote Speaker: CanQueue 2016.
2016 Keynote Speaker: ACM SIGMETRICS 2016.
2016 Distinguished Speaker: Information Modeling and Control of Complex Systems Workshop (IMaCCS 2016)

2016 EuroSys Best Student Paper.
 2011-16 Intel Faculty Gift every year.
 2015 Google Faculty Award.
 2015 Facebook Faculty Award.
 2015 Keynote Speaker: IEEE ICDCS 2015.
 2014 Keynote Speaker: GreenMetrics 2014.
 2014 CMU Mudge House Dinner with the Deans Honorary Event for Influential Teachers.
 2014 Apple Pie with Alpha Chi Honorary Event for CMU Faculty with Impact on Students.
 2013 Distinguished Speaker Series, Northwestern University.
 2013 General Chair ACM SIGMETRICS 2013.
 2012 Microsoft Faculty Award.
 2012 Invited Speaker: Brandeis University Distinguished High-Tech Alumni Event.
 2011 Microsoft Faculty Award.
 2011 Distinguished Speaker at Opening of Center Computer Engineering, Technion, Israel.
 2011 Kaufman Foundation Faculty Award.
 2010 Microsoft Faculty Award.
 2010 Google Faculty Award.
 2010 Yahoo! Faculty Award.
 2010 IEEE MICRO's Top Picks from 2010 award paper.
 2010 Distinguished Speaker Series, University of Toronto.
 2008-09 Intel Faculty Gift each year.
 2009 Invited Speaker: Columbia Applied Probability Day 2009.
 2009 Yahoo! Faculty Award.
 2008 Keynote Speaker: IEEE MASCOTS 2008.
 2008 Keynote Speaker: SIPEW 2008.
 2008 IBM Faculty Award.
 2007 Microsoft Faculty Award.
 2007 Program co-Chair ACM SIGMETRICS 2007.
 2007 Program co-Chair QEST 2007.
 2007 Plenary Speaker: Annual Lunten Conference 2007.
 2007 Keynote Speaker: ORSIS 2007.
 2006 Plenary Speaker: Carnegie Mellon 50 Year Anniversary Symposium.
 2005 Invited to IFIP 7.3 WG on Computer Performance Modeling and Analysis.
 2001-04 IBM Faculty Award each year.
 2003 Herbert A. Simon Award for Teaching Excellence, Carnegie Mellon University.
 2003 ACM SIGMETRICS Best Student Paper Award.
 2003 IEEE International Teletraffic Congress Best Student Paper Award.
 2001 NSF CAREER Award.
 2001 EMC Faculty Award.
 2001-04 Anna McCandless Chair for Career Development, Carnegie Mellon University.
 1996-99 NSF Mathematical Sciences Postdoctoral Fellowship.
 1996 ACM SIGMETRICS Best Paper Award for Integrating Systems and Theory.
 1990-96 6-year National Physical Science Consortium Fellowship for Women and Minorities.
 1995 Demitri Angelakos Altruism Award, U.C. Berkeley.
 1994 Outstanding Graduate Student Instructor Award, Campus-Wide, U.C. Berkeley.
 1994 EECS Graduate Student Instructor of the Year Award, U.C. Berkeley.
 1994 Teaching Effectiveness Award, Campus-Wide, U.C. Berkeley.
 1990 Awarded National Science Foundation Graduate Fellowship.
 1990 Awarded Office of Naval Research Graduate Fellowship.
 1988 Mitchom Prize in Computer Science, Brandeis University.
 1988 Graduated Summa Cum Laude, Brandeis University.
 1988 Undergraduate Thesis Highest Honors, Brandeis University.

1987 Phi Beta Kappa.
 1984-88 Brandeis University 4-year Merit Scholarship.
 1984-88 Lulu T. Briggs 4-year Scholarship.
 1984 Valedictorian South Brunswick High School, New Jersey.

PUBLICATIONS

Books

- [22] Mor Harchol-Balter. *IN PROGRESS: Probability Theory for Computer Scientists*. Currently working with publisher. Expected publication date: 2024. *Based on 500 pages of lecture notes from 15-259 class at CMU.*
- [13] Mor Harchol-Balter. *Performance Analysis and Design of Computer Systems*. Cambridge University Press. 2013. *Based on 1000 pages of lecture notes from 15-849a,b and 15-857 classes at CMU.*

Thesis

- [96] Mor Harchol-Balter. *Network Analysis without Exponentiality Assumptions*. Ph.D. Thesis. University of California, Berkeley, December 1996.

Guest Editor

- [07] Mor Harchol-Balter. “New Perspectives on Scheduling.” *ACM Performance Evaluation Review, Special Issue*, vol. 34, no. 4, March 2007. Guest editor: Mor Harchol-Balter.

Chapters in Books

- [21] Ben Berg, Mor Harchol-Balter. “Optimal Scheduling of Parallel Jobs with Unknown Service Requirements.” *Handbook of Research on Methodologies and Applications of Supercomputing*, 2021. pp. 18-40.
- [99] Mor Harchol-Balter and Allen Downey. “Exploiting Process Lifetime Distributions for Load Balancing.” Book chapter in *Mobility: Processes, Computers and Agents (ACM Press Series)*, edited by Dejan Milićević, Fred Douglass, and Richard Wheeler. Addison-Wesley Publishing Company and the ACM Press, April 1999, pp. 229-259.
- [97] Earlier version appeared in: *ACM Transactions on Computer Systems*, vol. 15, no. 3, August 1997, pp. 253-285.
- [96] Earlier version appeared in: *Proceedings of ACM SIGMETRICS 1996 Conference on Measurement and Modeling of Computer Systems (SIGMETRICS 96)*, May 1996, Philadelphia, PA, pp. 13-24. Winner of **Best Paper Award for Integrating Systems and Theory**.
- [95] Much earlier version appeared in: *Fifteenth ACM Symposium on Operating Systems Principles (SOSP) Poster Session*, Copper Mountain, CO, December 1995.

Refereed Journal Papers

- [21] Mor Harchol-Balter, Takayuki Osogami, Alan Scheller-Wolf, Adam Wierman. “Correction to: Multi-server Queueing Systems with Multiple Priority Classes.” *Queueing Systems*.

Apr 2005 Chaired committee for Allen Newell Graduate Teaching Award.
 Apr 2005 Chaired committee for Herbert A. Simon Award.
 Apr 2005 Presentation to 100 undergraduates on "Applying to Grad School."
 Mar 2005 Presentation at Open House Graduate Student Recruiting.
 Spr 2005 CS hiring committee: Performance evaluation area.
 2005 Doctoral Review Committee (DRC).
 2004-2005 Instrumenting SCS Perlis Teaching Assistant Award.
 Jan 2005 Exam questioner/grading for Tepper School qualifiers.
 Dec 2004 Undergraduate math colloquium speaker. Host: Deborah Brandon.
 Sep 2004 Women in SCS Road Show.
 Aug 2004 Host CSD IC party at my home.
 May 2004 Judge for Herbert A. Simon Award.
 Apr 2004 Presentation to 100 undergraduates on "Applying to Grad School."
 Jan 2004 Exam questioner/grading for Tepper School qualifiers. Also, reader on some summer papers.
 2004 Doctoral Review Committee (DRC).
 Aug 2003 Host CSD IC party at my home.
 May 2003 Judge for Newell Award.
 Apr 2003 Presentation to 100 undergraduates on "Applying to Grad School."
 Apr 2003 Heavy involvement in faculty recruiting. Host parties.
 Jan 2003 Exam questioner/grading for Tepper School qualifiers.
 2003 Doctoral Review Committee (DRC).
 Nov 2002 Presentation to 100 undergraduates on "Applying to Grad School."
 Aug 2002 Host CSD IC party at my home.
 Aug 2002 Provide interview for undergraduate recruitment tape.
 July 2002 Committee to evaluate department chair position.
 May 2002 Joined SCS Web advisory committee.
 May 2002 Heavy involvement in faculty recruiting. Host parties.
 Apr 2002 Presentation to 150 undergraduates on "Applying to Grad School."
 Mar 2002 Presentation at Open House Graduate Student Recruiting.
 Jan 2002 Exam questioner/grading for Tepper School qualifiers.
 Nov 2001 Sent letters to top 130 CMU alumni encouraging them to apply to grad school at CMU.
 Nov 2001 Presentation to CMU Women Graduate Organization on "Advising and Being Advised."
 Aug 2001 Host CSD IC party at my home.
 Aug 2001 Presentation at Andrews Leap to High School students.
 Apr 2001 Heavy involvement in faculty recruiting. Host parties/candidates.
 Mar 2001 Presentation at Open House Graduate Student Recruiting.
 Nov 2000 Presentation at Freshman IC.
 Nov 2000 Led Pannel at CS Immigration Course titled
 "How to be a Great Advisor/ How to be a Great Grad Student."
 Nov 2000 Sent letters to top 40 CMU alumni encouraging them to apply to grad school at CMU.
 Aug 2000 Host CSD IC party at my home.
 July 2000 Presentation at Andrews Leap to High School students.
 Apr 2000 Presentation to prospective undergraduates at Undergrad Open House.
 Mar 2000 Presentation at Open House Graduate Student Recruiting.
 Oct 1999 Presentation to Women in SCS group on "Getting the Most Out of a Conference."
 Aug 1999 Presentation at Andrews Leap to High School students.

COMMUNITY SERVICE/OUTREACH

2018 Google Women in Tech Summit speaker.

- 2008-pres Created first-ever Western PA American Regional Mathematics League (ARML) team.
Includes 25 high schoolers from all over Western PA.
Our team ranked 3rd in the nation in the B division in the 2012 competition and is now in the A division.
Organize weekly 3-hour team practices and trips to national math competitions throughout the year.
Receive annual funding from Jump Trading, Chicago, IL.
- 2004-2005 Volunteer teacher of Elementary School National Math Olympiad Contest at Winchester-Thurston school.
Teach every Monday afternoon.
- 2002-2004 Volunteer math teacher at Winchester-Thurston School, Pittsburgh, PA.
Teach advanced mathematics to 2nd graders. Wednesday mornings, every other week.
- 1988-1990 Volunteer Teacher at City Year, Stilling St., Boston, MA.
Volunteer Teacher Boston Partners in Education.
Teach math to disadvantaged students one evening per week.

CONTRACT AND GRANT SUPPORT

Current:

Title: Predictable Scheduling for Borg
PI : Mor Harchol-Balter.
Agency: Google Faculty Award
Duration: August '20 - unrestricted
Amount: \$70,000
Award No: Google

Title: NSF-CMMI: Optimal Scheduling of Parallelizable Jobs in Cloud Computing Environments
PI : Mor Harchol-Balter.
co-PI: Ben Moseley.
Agency: NSF-CMMI.
Duration: Jan '20 - Dec '22.
Amount: \$549,470.00.
Support: 25%SU.
Award No: 1938909
PM: Georgia-Ann Klutke.

Title: Facebook Graduate Fellowship.
PI : Benjamin Berg (my graduate student).
Duration: Jan '19 - Jan '21.

Title: NSF-CSR: Medium: Collaborative Research: Foundations of Cache Network Operations for Content Delivery
PIs : Mor Harchol-Balter and Ramesh Sitaraman.
Agency: NSF-CSR.
Duration: Sept '18 - Sept '22.
Amount: \$1,200,000.00.
Support: 33%SU.

Award No: 1763701 (originally 180341).
PM: Samee Khan.

Past:

Title: NSF-XPS: FULL: Bridging Parallel and Queueing-Theoretic Scheduling – SUPPLEMENT
PIs : Mor Harchol-Balter.
Agency: NSF-XPS – SUPPLEMENT.
Duration: July '19 - July '20
Amount: \$150,000.
Support: 33%SU.
Award No: 1629444.
PM: Tracy Kimbrel.

Title: RobinHood: Cache Sharing System
PI : Mor Harchol-Balter.
Agency: Microsoft Faculty Award
Duration: April '18 - unrestricted
Amount: \$30,000
Award No: Microsoft

Title: NSF-XPS: FULL: Bridging Parallel and Queueing-Theoretic Scheduling.
PIs : Guy Blleloch, Umut Acar, Mor Harchol-Balter.
Agency: NSF-XPS.
Duration: July '16 - July '19
Amount: \$825,000.
Support: 33%SU.
Award No: 1629444.
PM: Tracy Kimbrel.

Title: NSF Graduate Fellowship.
PI : Ziv Scully (my graduate student).
Duration: September '16 - September '19.

Title: NSF-CMMI:Reducing Latency by Replicating Jobs.
PI : Mor Harchol-Balter.
Agency: NSF-CMMI.
Duration: Sept '15 - Sept '18
Amount: \$299,711.
Support: 33%SU.
Award No: 1538204.
PM: Michael Fu.

Title: Performance Analysis and Design of Computer Systems.

PI : Mor Harchol-Balter.
Agency: Facebook Faculty Award
Duration: Sept '15 - unrestricted
Amount: \$30,000
Award No: Facebook

Title: When Many Workloads Share Networked Storage: How to Guarantee Tail Latency SLOs.
PI : Mor Harchol-Balter.
Agency: Google Faculty Research Award: Unrestricted Gift
Duration: February '15 - February '16.
Amount: \$67,000.
Award No: Google – TBA.

TITLE: NSF REU Supplement
PI: Mor Harchol-Balter.
Agency: NSF-CSR Supplement to NSF-CSR-1116282.
Duration: Summer 2015.
Amount: \$8000.
Award No: 25851.2.1122199.
PM: Mimi McClure.

Title: NSF-CMMI: Priority Pricing for Profit Maximization Given Strategic, Delay-Sensitive Customers with a Continuum of Types.
PI : Mor Harchol-Balter (with Mustafa Akan, co-PI).
Agency: NSF-CMMI
Duration: Aug '13 - Aug '16
Amount: \$290,000.
Support: 25%SU.
Award No: 1334194.
PM: Sheldon Jacobson.

Title: Intel Pittsburgh Cloud Computing ISTC Fellowship for Student.
PI : Timothy Zhu (my graduate student).
Agency: Intel Pittsburgh.
Duration: September '13 - '16
Amount: Yearly support for 1 Ph.D. student

Title: NSF-CSR: Small Simple Dynamic Traffic-Oblivious Power Management for Multi-Tier Web Clusters.
PI : Mor Harchol-Balter.
Agency: NSF-CSR
Duration: Aug '11 - Aug '15
Amount: \$373,472.
Support: 33%SU.
Award No: 1116282.
PM: Krishna Kant.

Title: NSF Graduate Fellowship.
PI : Kristy Gardner (my graduate student).
Duration: September '12 - September '15.

Title: Intel Pittsburgh Cloud Computing ISTC Fellowship for Student.
PI : Anshul Gandhi (my graduate student).
Agency: Intel Pittsburgh.
Duration: September '11 - '13
Amount: Yearly support for 1 Ph.D. student

Title: Western PA ARML Team Funding.
PI : Mor Harchol-Balter
Agency: Jump Trading, Inc.
Duration: Sept '12 - Sept '13.
Amount: \$12,000.
Award No: ARML

Title: Maximizing Revenue in a Multi-Class Environment with Unknown Customer Valuations and Unknown Delay Sensitivities.
PI : Mor Harchol-Balter.
Agency: Microsoft-CMU Center for Computational Thinking
Duration: Aug '12 - Aug '13.
Amount: \$80,000.
Award No: Microsoft

Title: NSF-CSR: Student Travel Support for Sigmetrics 2013.
PI : Mor Harchol-Balter.
Agency: NSF-CSR
Duration: Jan '13 - Jan '14
Amount: \$10,000.
Award No: 1300202.
PM: Krishna Kant.

Title: Maximizing Pricing Based on Current Delay.
PI : Mor Harchol-Balter.
Agency: Microsoft-CMU Center for Computational Thinking
Duration: Aug '11 - Aug '12.
Amount: \$74,736.
Award No: Microsoft

Title: Western PA ARML Team Funding.
PI : Mor Harchol-Balter.
Agency: Jump Trading, Inc.
Duration: Sept '11 - Sept '12.
Amount: \$7,500.
Award No: ARML

Title: Kauffman Foundation Commercialization Grant.
PI : Awarded to my student: Anshul Gandhi.
Agency: Kauffman Foundation
Duration: Jan '11 - Jan '12.
Amount: \$25,000.
Award No: Kauffman

Title: Performance Analysis and Design of Computer Systems.
PI : Mor Harchol-Balter.
Agency: Yahoo! Faculty Research Award
Duration: Sept '10 - Sept '11.
Amount: \$30,000
Award No: Yahoo

Title: Energy Efficient and Proportional Datacenter Computing.
PI : Dave Andersen and Mor Harchol-Balter.
Agency: Google Focused Research Award
Duration: February '10 - February '11.
Amount: \$100,000.
Award No: Google 22796.1-2.5003506

Title: Power Management in Data Centers.
PI : Mor Harchol-Balter.
Agency: Microsoft-CMU Center for Computational Thinking
Duration: Aug '10 - Aug '11.
Amount: \$75,000.
Award No: Microsoft 5004487 Project 24592

Title: Building a Power-Efficient Load Balancer.
PI : Mor Harchol-Balter.
Agency: Yahoo! Faculty Research Award
Duration: Sept '09 - Sept '10.
Amount: \$25,000
Award No: 5004676

Title: IBM Faculty Award
PI : Mor Harchol-Balter.
Agency: IBM Faculty Research Award
Duration: June '08 - May '09.
Amount: \$30,000
Award No: 5002343

Title: POW! Project
PI : Mor Harchol-Balter.

Agency: Innovation Works
Duration: June '09 - Sept '09.
Amount: \$15,000
Award No: N/A

Title: Optimizing Server Farm Performance in Power-Constrained Environments.
PI : Mor Harchol-Balter.
Agency: The Technology Collaborative of Pittsburgh.
Duration: January '09 - June '10.
Amount: \$124,000.
Support: 66%SU.
Award No: 1010970

Title: Optimizing Server Farm Performance in Power-Constrained Environments.
PI : Mor Harchol-Balter.
Agency: Matching funds (in kind) from Project Olympus and the Idea Foundry, Pittsburgh.
Duration: January '09 - June '10.
Amount: \$30,000.

Title: Efficient Power Management by Alternating Between "Extreme" Power States.
PI : Mor Harchol-Balter.
Agency: CMU Technology Transfer Center & Project Olympus.
Duration: January '09 - June '10.
Amount: \$40,000.
Award No: 2001801

Title: Intel Pittsburgh Lab Fellowship for Student.
PI : Anshul Gandhi (my graduate student).
Agency: Intel Pittsburgh.
Duration: September '08 - May '10.
Amount: 1.5 years graduate student support.

Title: SMA/PDOS Collaborative Research: Design, Analysis, and Control of Adaptive Sharing Mechanisms.
co-PI : Mor Harchol-Balter (with Vishal Misra, Dan Rubenstein, Ed Coffman, and Predrag Jelenkovic).
Agency: NSF.
Grant No: NSF CCR-0615262. Division of Computer and Network Systems. Computer Systems.
Duration: August '06 - July '09.
Amount: \$1,000,000.
Support: 33%SU.
Center No: 15653.1.1120828.

Title: SGER: Collaborative Research: CSR-SMA:
New Breakthrough in Analyzing Limited Resource Sharing Systems.
PI : Mor Harchol-Balter (with Jim Dai and Bert Zwart).
Agency: NSF.
Grant No: NSF CNS-0719106.

Duration: August '07 - August '08.
Amount: \$100,000.
Support: 33%SU.
Center No: 17666.1.1121054

Title: Scheduling the TeraGrid.
PI : Mor Harchol-Balter.
Company: Microsoft Research. Award Number: 16101.
Duration: May '07 - May '08.
Amount: \$75,000.
Support: Winner of Microsoft Breakthrough Research Grant. Unrestricted Gift.

Title: CAREER: The Impact of Resource Scheduling on Improving Server Performance.
PI : Mor Harchol-Balter.
Agency: NSF.
Grant No: NSF CCR-0133077. CAREER Award. Division of Computer and Network Systems. Distributed Systems.
Duration: March '02 - February '08.
Amount: \$350,000.
Support: 33%SU.
Center No: 8061.1.1120231.

Title: ITR: Improving the Performance of Web Servers under Overload.
PI : Mor Harchol-Balter.
Agency: NSF.
Grant No: ITR-0313148. Division of Computer and Communication Foundations.
Duration: August '03 - July '07.
Amount: \$280,000.
Support: 8%SU.
Center No: 10575.1.1120449.

Title: Siebel Fellowship.
PI : Adam Wierman (my graduate student).
Duration: September '06 - September '07.

Title: External QoS Management System for Backend Database Servers.
PI : Mor Harchol-Balter.
Agency: The Technology Collaborative of Pittsburgh.
Duration: August '05 - August '06.
Amount: \$188,550.
Support: 33%SU.
Center No: 13821.1a.1010629.

Title: Analysis of Cycle Stealing and other Problems via new Dimensionality Reduction Approach.
PI : Mor Harchol-Balter.
Agency: NSF.
Grant No: CCR-0311383. Division of Computer and Communication Foundations. Theory of Computing.

Duration: July '03 - July '06.
Amount: \$150,000.
Support: 25%SU.
Center No: 10372.1.1120427.

Title: NSF PhD Graduate Fellowship for Student.
PI : Adam Wierman (my graduate student).
Agency: NSF.
Duration: July '03 - July '06.
Amount: 3 years graduate student support.

Title: QOS for Online Shopping: Providing Priority by Scheduling the Database.
PI : Mor Harchol-Balter (with Natassa Ailamaki, Co-PI)
Agency: Pittsburgh Digital Greenhouse.
Duration: August '03 - August '05.
Amount: \$265,192.
Support: 33%SU.
Center No: 10363.1.1010366.

Title: IBM Faculty Award with PhD Graduate Fellowship for Student.
PI : Bianca Schroeder (my graduate student).
Agency: IBM.
Duration: September '03 - September '05.
Amount: 2 years graduate student support.

Title: ITR: Exploiting Remote Infrastructure for Mobile Information Access.
PI : M. Satyanarayanan (Mor Harchol-Balter, Co-PI).
Agency: NSF.
Grant No: ITR ANI-0081396. Division of Computer and Network Systems.
Duration: September '00 - September '05.
Amount: \$448,820.
Support: 33%SU.
Center No: 6748.1.1120092.

Title: Running Web Servers under Overload.
PI : Mor Harchol-Balter.
Agency: Pittsburgh Digital Greenhouse.
Duration: August '01 - August '02.
Amount: \$200,500.
Support: 50-100%AY.
Center No: 6737.1.1010099.

Title: Connection Scheduling in Web Servers.
PI : Mor Harchol-Balter.
Agency: Pittsburgh Digital Greenhouse.
Duration: August '00 - August '01.

Amount: \$200,075.
Support: 67-100%SU.
Center No: 4737.1.1010099.

Title: Faculty Gift.
PI : Mor Harchol-Balter.
Agency: EMC² Corporation.
Duration: April '01 - March '04.
Amount: \$100,000.
Support: 0-22%AY.
Center No: 8236.1.1010272.

Title: IBM Faculty Award with PhD Graduate Fellowship for Student.
PI : Nikhil Bansal (my graduate student).
Agency: IBM.
Duration: September '01 - September '03.
Amount: 2 years graduate student support.

Title: Postdoctoral Fellowship Mathematical Sciences.
PI : Mor Harchol-Balter.
Agency: NSF.
Grant No: 9627445.
Duration: September '96 - August '00.
Support: Postdoctoral Research Fellowship Stipend.

INDUSTRY EXPERIENCE

2021 - pres Collaborating with Voltron on Database Scheduling.
2019 - pres Collaborating with Google on Borg Scheduling.
2020 - pres Collaborating with Google on Execution Economy.
2019 - 2021 Collaborating with Facebook on Caching Systems.
2017 - 2019 Collaborating with Microsoft on Web Caching.
2016 - 2018 Collaborating with Akamai on CDN Caching Algorithms.
2015 - 2016 Collaborating with Google on Meeting Tail QoS Guarantees for Shared Networked Storage.
2008 - 2016 Collaborating with Intel Research-Pittsburgh on Data Center Power Management (Mike Kozuch).
2012 - 2014 Collaborating with Microsoft Research-Cambridge on Prioritizing Mixed Workloads (Eno Thereska).

2001: SCS Facilities Committee, SCS Facilities Committee, ECE Qualls Committee, ECE Undergraduate Studies Committee

2000: SCS Systems Hiring Committee, ECE Undergraduate Studies Committee

1999: ECE Undergraduate Studies Committee, Computer Engineering Curriculum Committee (chair)

1998: ECE Undergraduate Studies Committee

Support *PicoCTF*, National Science Foundation, 2014-2017, awarded, **\$225,000** co-PI with David Brumley (CMU ECE).

Amazon Research grant, AWS credits for developing autograding service, June, 2013, **\$2,000**

Research award, Intel Corporation, Cloud computing research, June, 2010, **\$125,000**

Intel equipment grant, Autograding Cluster for 15-213: Intro to Computer Systems, Mar, 2010, **\$50,000**.

Unrestricted gifts, *Anonymous Donor, through the Vanguard Charitable Endowment*, **\$300,000**, 2006–2013.

Towards Petascale Simulation of Urban Earthquake Impacts, National Science Foundation, (OCI-0749227), Sept 2007–Aug 2011, \$1,600,000, co-PI with Jacobo Bielak (CMU CEE), Gregory Fenves (UC Berkeley), Ahmed Elgamal (UCSD), Kwan-Liu Ma (UCSD).

Liberating Personal Computing from Hardware, National Science Foundation, (IIS-0429334), Sept 2004–Aug 2007, \$1,320,000, co-PI with Satya (CMU SCS), Perrig (CMU ECE) and Farber (CMU ISRI).

Deployment-based Insights from Internet Suspend/Resume, Carnegie Mellon CyLab, July 2006 - June 2007, \$60,000, co-PI with Satya.

IBM equipment grant, Blade Center for Internet Suspend/Resume, Aug, 2004, \$130,056, PI, (co-PI: Satya).

Computational Database Systems for Massive Scientific Datasets, National Science Foundation, (IIS-0429334), Sept 2004 - Aug 2007, \$1,320,000, PI (co-PIs: Ganger (ECE) and Ailamaki (SCS))

Seurat: Self-Diagnosis of Network Systems, Carnegie Mellon CyLab, July 2004–June 2005, \$70,000, PI (co-PI: Hui Zhang, CMU SCS).

The SCEC Community Modeling Environment - An Information Infrastructure for System Level Earthquake Research, National Science Foundation, Sept 2001–August 2006, \$395,000. co-PI with J. Bielak (CMU CEE).

Seismic Propagation in Urban Regions, National Science Foundation, Sept 2000–March 2001, \$130,000. co-PI with J. Bielak (CMU CEE).

Large-Scale Modeling and Forecasting of Complex Earthquake Ground Motion in Sedimentary Basins, *National Science Foundation KDI award, (CMS-9980063), Sept 1999–Aug 31, 2002, \$2,131,000. co-PI with J. Bielak and O. Ghattas (CMU CE), J. Shewchuk (UC-Berkeley), and S. Day (San Diego State University).*

Intel equipment grant, Intel Computer Systems Cluster for CS 213, Aug, 1999, **\$101,320**, co-PI with Randy Bryant.

Microsoft software grant for Intel Computer Systems Cluster, Aug, 1999, **\$49,920**, co-PI with Randy Bryant.

Resource Management Under Application Control, *Defense Advanced Research Projects Administration (DARPA), Oct, 1996–Sept, 1999, \$2,920,810, co-PI with T. Gross.*

Unrestricted Grant for Research in the Performance of Finite Element Earthquake Simulations on Parallel Systems, 1994, *Intel Corp, \$40,000, PI.*

Equipment Grant for Research in Parallel Scientific Computing(72-node Paragon system), 1994, *Intel Corp, \$2,000,000, PI.*

Earthquake Ground Motion Modeling in Large Basins., *National Science Foundation Grand Challenge Award (CMS-9318163), Sept, 1993–Feb, 1998, \$2,154,000, co-PI with J. Bielak (CE, PI), and O. Ghattas (CE).*

Automatic Tools for Developing Fine-Grained Signal Processing Programs on Multicomputers., *Air Force Office of Scientific Research (AFOSR), Washington, DC, Jan, 1992–Dec, 1994, \$395,000, PI, (H.T. Kung, co-PI)*

Unrestricted Grant for Research in Programming Tools for Parallel Computing, *E-Systems Corp, Falls Church, VA. 1992, 1993, \$12,000, PI.*

Complete Tool Set for Developing Large Scale Signal Processing Applications on Multicomputers., *Office of Naval Research(ONR), Washington DC, Air Force Office of Scientific Research (AFOSR), Washington, DC, and Naval Ocean Systems Center (NOSC), San Diego, CA, March, 1989–April, 1990, \$200,000 (funded by AFOSR), \$50,000 (funded by NOSC), co-PI with H. T. Kung.*

Initialization and Restart in Automated Manufacturing Facilities. *National Bureau of Standards, Gaithersburg, MD, January, 1986, \$120,000, co-PI with P. F. Reynolds, Jr.*

BIOGRAPHY

Tuomas Sandholm is Angel Jordan University Professor of Computer Science at Carnegie Mellon University and a serial entrepreneur. His research focuses on the convergence of artificial intelligence, economics, and operations research. He is Co-Director of CMU AI. He is the Founder and Director of the Electronic Marketplaces Laboratory. He has published over 500 peer-reviewed papers, holds 25 US patents, and his h-index is 91. In addition to his main appointment in the Computer Science Department, he holds appointments in the Machine Learning Department, Ph.D. Program in Algorithms, Combinatorics, and Optimization (ACO), and CMU/UPitt Joint Ph.D. Program in Computational Biology.

He has built optimization-powered electronic marketplaces since 1989, and has fielded several of his systems. In parallel with his academic career, he was Founder, Chairman, first CEO, and CTO/Chief Scientist of CombineNet, Inc. from 1997 until its acquisition in 2010. During this period the company commercialized over 800 of the world's largest-scale generalized combinatorial multi-attribute auctions, with over \$60 billion in total spend and over \$6 billion in generated savings.

Since 2010, his algorithms have been running the national kidney exchange for the United Network for Organ Sharing, where they autonomously make the kidney exchange transplant plan for 80% of U.S. transplant centers together each week. He also co-invented never-ending altruist-donor-initiated chains and his algorithms created the first such chain. Such chains have become the main modality of kidney exchange worldwide and have led to around 10,000 life-saving transplants. He invented liver lobe and multi-organ exchanges, and the first liver-kidney swap took place in 2019.

Sandholm has developed the leading algorithms for several general classes of game with his students. The team that he leads is the multi-time world champion in computer heads-up no-limit Texas holdem, which is the main benchmark and decades-open challenge problem for testing application-independent algorithms for solving imperfect-information games. Their AI Libratus became the first and only AI to beat top humans at that game. Then their AI Pluribus became the first and only AI to beat top humans at the multi-player game. That is the first superhuman milestone in any game beyond two-player zero-sum games. He is Founder and CEO of Strategy Robot, Inc., a CMU spinout that builds AI software products for strategic reasoning under imperfect information for US government military, intelligence, security, and cybersecurity applications. The company has already built four such software products for game-theoretic analysis of four different classes of DoD problems: COA generation, portfolio planning, aerial planning, and base defense.

He served as the redesign consultant of Baidu's sponsored search auctions and display advertising markets in 2009–2013; within two years Baidus market cap increased 5x to \$50 billion due to doubled monetization per user. He has served as consultant, advisor, or board member for Yahoo!, Google, Chicago Board Options Exchange, swap.com, Granata Decision Systems (now part of Google), Rare Crowds (now part of Media Math), and others.

He earned a Ph.D. and M.S. in computer science and a Dipl. Eng. (M.S. with B.S. included) with distinction in Industrial Engineering and Management Science. Among his honors are the IJCAI Minsky Medal, IJCAI McCarthy Award, AAAI Engelmores Award, IJCAI Computers and Thought Award, inaugural ACM Autonomous Agents Research Award, CMU's Allen Newell Award for Research Excellence, Sloan Fellowship, NSF Career Award, Carnegie Science Center Award for Excellence, Edelman Laureateship, and the Goldman Sachs 100 Most Intriguing Entrepreneurs Award. He is Fellow of the ACM, AAAI, INFORMS, and AAAS. He holds an honorary doctorate from the University of Zurich.

EMPLOYMENT

(Founding of companies and consulting are listed separately later.)

- 1/2001– **Carnegie Mellon University**
Angel Jordan University Professor of Computer Science, 5/2020–
Angel Jordan Professor of Computer Science, 2/2018–
Professor, 7/2006–2/2018
Associate Professor, 1/2001–6/2006
Computer Science Department
- 2017– **Carnegie Mellon University**
Co-Director
CMU AI
- 1/2001– **Carnegie Mellon University**
Founder and Director
Electronic Marketplaces Laboratory
- 5/2013– **Carnegie Mellon University**
Member
Ph.D. Program in Algorithms, Combinatorics, and Optimization (ACO)
- 12/2012– **Carnegie Mellon University**
Affiliated Professor
Carnegie Mellon/University of Pittsburgh Joint Ph.D. Program in
Computational Biology
- 12/2007– **Carnegie Mellon University**
Affiliated Professor
Machine Learning Department
- 1/2001– **Carnegie Mellon University**
Affiliated Faculty
Theory Group
- 7/2000–12/2000 **Washington University**
Associate Professor
Department of Computer Science
- 8/1996–6/2000 **Washington University**
Assistant Professor
Department of Computer Science
- 8/1997–12/2000 **Washington University**
Adjunct faculty member (courtesy appointment)
Center for Optimization & Semantic Control
Department of Systems Science and Mathematics

9/1992–8/1996	University of Massachusetts, Amherst <i>Research Assistant</i> Distributed Problem Solving Lab, Department of Computer Science
9/1995–12/1995	University of Massachusetts, Amherst <i>Teaching Associate</i> , Full lecturing responsibility Department of Computer Science
12/1990—8/1992	Technical Research Centre of Finland <i>Research Scientist</i> , Laboratory for Information Processing Espoo, Finland
6/1990–12/1990	Nokia Research Center, Knowledge Engineering Department <i>Research Scientist</i> (intern during college) Espoo, Finland
12/1988—5/1990	Kielikone Co. <i>Programmer (during college studies)</i> Espoo, Finland
6/1989–7/1989	Smart and Final Iris, Co. <i>Database Developer (during a college summer break)</i> Los Angeles, CA

EDUCATION

5/1994–9/1996	Ph.D., Computer Science, GPA 4.0/4 University of Massachusetts, Amherst Thesis title: Negotiation among self-interested computationally limited agents Ph.D. Committee: 1. Victor Lesser (chair), University of Massachusetts, Computer Science 2. James Kurose, University of Massachusetts, Computer Science 3. Shlomo Zilberstein, University of Massachusetts, Computer Science 4. Mark Fox, U. of Toronto, Industrial Engineering/Computer Science 5. Herbert Gintis, University of Massachusetts, Economics
9/1992–5/1994	M.S., Computer Science, GPA 3.95/4 University of Massachusetts, Amherst Master's Project (2 parts): 1. Utility-based termination of anytime algorithms 2. A new order parameter for 3SAT

- 9/1988–12/1991 **Dipl. Eng. (like M.S. with B.S. included) *with distinction***
Industrial Engineering and Management Science
Helsinki University of Technology, Finland
Majors:
1. Knowledge engineering, GPA 4.7/5
2. Business strategy and international marketing, GPA 4.2/5
3. Systems and operations research, GPA 5.0/5
In addition, 18 post-Master's credits in majors 1. and 3.
- 8/1987–7/1988 **Airforce Academy, Finland**
Pilot Second Lieutenant
Obligatory military service; highest possible officer rank achieved

PERSONAL

- Born December 1968, Helsinki, Finland. Citizenships: US and Finland. Married, two children.
- URL: <http://www.cs.cmu.edu/~sandholm>
- Languages: Finnish, English, Swedish, German.
- Security clearance: Top Secret.
- Hobbies:
 - Windsurfing. Best results: 12th in the Worlds (1987), 5th in the Europeans (1987), 1st in the Finnish Nationals (1987), ranking #1 in Finland (1986), Formula class US Masters 2nd place (2005).
 - Sailboat racing. Best results: Beneteau 36.7 Corinthian class North American Champion 2016 (as tactician), 10th in Flying Scot North American Championships 2019 (as captain).
 - Squash
 - Infrequent hobbies: chess, Go, poker, snowboarding
 - Past hobby: Airplane piloting, including acrobatic

Primary research interests: Artificial intelligence; market design; optimization (search and integer programming, combinatorial optimization, stochastic optimization, and convex optimization); kidney exchange; liver exchange; cross-organ exchange; game theory; mechanism design; electronic commerce; multiagent systems; auctions and exchanges; automated negotiation and contracting; equilibrium finding; algorithms for solving games; opponent modeling and exploitation; advertising markets; sourcing; prediction markets; voting; coalition formation; preference elicitation (especially from multiple agents); normative models of bounded rationality; resource-bounded reasoning; fairness; privacy; multiagent learning; safe exchange; machine learning.

Secondary research interests: Constraint satisfaction; reputation mechanisms; networks.

PUBLICATION LIST

JOURNAL PAPERS

1. Schmucker, R., Farina, G., Faeder, J., Fröhlich, F., Sinan Saglam, A., and Sandholm, T. 2022. Combination treatment optimization using a pan-cancer pathway model. *PLOS Computational Biology*. Earlier version available in bioRxiv.
2. Ayers, B., Sandholm, T., Gosev, I., Prasad, S., and Kilic, A. 2021. Using Machine Learning to Improve Survival Prediction After Heart Transplantation. *Journal of Cardiac Surgery* 36(11):4113–4120.
3. Kroer, C. and Sandholm, T. 2020. Limited Lookahead in Imperfect-Information Games. *Artificial Intelligence* 283, Special Issue on Autonomous Agents Modelling Other Agents.
4. Braggion, E., Gatti, N., Lucchetti, R., Sandholm, T., and von Stengel, B. 2020. Strong Nash equilibria and mixed strategies. *International Journal of Game Theory*, 49(3): 699–710.
5. Blum, A., Dickerson, J., Haghtalab, N., Procaccia, A., Sandholm, T., and Sharma, A. 2020. Ignorance is Almost Bliss: Near-Optimal Stochastic Matching with Few Queries. *Operations Research* 68(1): 16–34.
6. Kroer, C., Waugh, K., Kiliç-Karzan, F., and Sandholm, T. 2020. Faster algorithms for extensive-form game solving via improved smoothing functions. *Mathematical Programming Series A*, 179: 385–417.
7. Dickerson, J., Procaccia, A., and Sandholm, T. 2019. Failure-Aware Kidney Exchange. *Management Science* 65(4): 1768-1791.

- International Joint Conference on Artificial Intelligence Workshop on Adaptation and Learning in Multiagent Systems, Montreal, Canada, 1995.
- European Conference on Artificial Intelligence Workshop on Learning in DAI Systems, Budapest, Hungary, 1996.
- AAAI Spring Symposium Series: Adaptation, Coevolution and Learning in Multiagent Systems, Stanford University, CA, 1996.

Professional affiliations

- American Association for Artificial Intelligence (AAAI)
- Association for Computing Machinery (ACM)
- The Game Theory Society
- Institute for Operations Research and the Management Sciences (INFORMS)
- Constraint Programming Society in North America (CPNA)
- American Economic Association (AEA)
- The Econometric Society
- American Association for the Advancement of Science (AAAS)
- Institute of Electrical and Electronics Engineers (IEEE)

Companies founded

2/2018–

Strategy Robot, Inc.

Founder, President, CEO, and Chairman

This CMU spinout is in the business of AI software solutions for strategic reasoning under imperfect information for US government military, intelligence, security, and cybersecurity applications. The company has already built four such software products for game-theoretic analysis of four different classes of DoD problems: COA generation, portfolio planning, aerial planning, and base defense.

- 3/2017– **Strategic Machine, Inc.**
Founder, President, CEO, and Chairman
 This CMU spinout is in the business of technology solutions for strategic reasoning under imperfect information. The company has exclusively licensed for this space from Prof. Sandholm’s Carnegie Mellon University Electronic Marketplaces Laboratory the Libratus technology, which was the first to beat top professional poker players at Heads-Up No-Limit Texas Hold’em, and a host of other technologies. The company targets a broad set of applications ranging from poker to other recreational games to business strategy, negotiation, cybersecurity, physical security, military applications, strategic pricing, product portfolio planning, finance, auctions, political campaigns, and steering evolution and biological adaptation, for example, for medical treatment planning.
- 7/2012– **Optimized Markets, Inc.**
Founder, President, CEO, and Chairman
 CMU spinout in optimization and electronic marketplaces. Products are in advertising campaign sales, proposal generation, inventory allocation, scheduling, and pricing, optimization, as well as supply prediction. For further information, see www.optimizedmarkets.com.
- 9/2011– **Sandholm Enterprises, Ltd.**
Founder, President, CEO, and Chairman
 Consulting on market design and optimization; technology and software development; intellectual property generation and holding.
- 5/1999–6/2010 **CombineNet, Inc. (acquired)**
Founder and Chief Scientist 12/2008–6/2010
Founder, Chairman of the Board, and Chief Scientist 3/2006–11/2008
Founder, Chairman of the Board, and Chief Technology Officer 5/1999–2/2006
 Fielded over 800 of the most complex combinatorial auctions in the world.
 CombineNet develops and runs optimization systems for markets, such as procurement auctions with expressive bidding.
 Over 50 big-name customers (mainly Global 2,000 companies).
 Grew to 130 employees with operations on four continents.
 Over \$60 billion in trading volume 2002–2010; over \$6 billion saved.
 Raised \$44 million of venture capital.
 First acquired 6/7/2010. Acquired by SciQuest (now Jaggaer) 9/2013.

Consulting work, corporate boards, and corporate advisory boards

- 4/2014–6/2014 **Chicago Board Options Exchange (CBOE)**
Legal expert on an automated market making patent case.
- 8/2012–1/2015 **Granata Decision Systems, Inc. (now part of Google)**
Chairman of the Board (6/2013–1/2015)
Board member, technical advisor, and business advisor (8/2012–1/2015)
Granata Decision Systems provided software that helps businesses and consumers make complex, data-driven group decisions. For one, it helps advertisers optimize the targeting of multiple campaigns.
Toronto, Canada
- 10/2011– **Technion-Microsoft Electronic Commerce Research Center**
(Founding) Scientific Advisory Board member
The Technion-Israel Institute of Technology, Microsoft Research (MSR) and Microsoft Online Services Division (OSD) co-established 10/2011 the Academic Research Center for E-Commerce Technologies. The new Research Center will promote and fund basic research in areas of computer science, artificial intelligence, game theory, economic and psychology, focusing on the connections between these subjects in the e-commerce domain. The center is the first academic research program by Microsoft Research in Israel, a part of the Microsoft R&D Center in Israel.
- 8/2010–8/2011 **swap.com / Netcyclr**
Consultant
Helped re-design the core matching algorithm for their Internet barter exchange (“a moneyless eBay”) to make them scalable. Invented the ways how barter chains can be employed for commercial (e.g., used) goods. Tens of thousands of users.
- 2/2009–8/2013 **Baidu**
Market design consultant
Helped Baidu completely redesign its sponsored search auctions. Already in the first two years of the engagement, monetization per eyeball doubled and Baidu’s market cap increased from \$10 billion to \$50 billion. Also consulted on the design of their Internet display advertising markets.
Beijing, China

7/2012–11/2014	Rare Crowds, Inc. (acquired by MediaMath 11/2014) <i>Consulting Chief Scientist</i> Startup that developed capabilities for highly detailed targeting in display advertising markets. Seattle and New York
2008	Google Legal expert on an electronic marketplaces patent case.
2005–2008	Yahoo! <i>Consultant</i> Re-designing Yahoo’s display advertising market and sponsored search auctions. Gave several day-long tutorials and talks on expressive optimization-based markets for the purpose. Proposed the idea of a market that integrates campaign-based advertising and spot advertising, and Yahoo! is now using that idea, with some newer enhancements. Also, Yahoo! is using a version of our optimize-and-dispatch architecture. Sunnyvale, CA; Santa Clara, CA; Pasadena, CA; Burbank, CA
2/16/2006	Mars, Inc. Combinatorial optimization and expressive commerce. McLean, VA
4/2001–12/2001	Raytheon Designing electronic marketplaces. Denver, CO
8/2000	Pavillion Technologies, Inc. Designing electronic marketplaces. Austin, TX
5/1999–6/1999	perfect.com (originally iwanto.com) Designing electronic marketplaces. Palo Alto, CA

- 1997–2001 **BusinessBots, Inc.**
Chief Scientist. (Later I asked my duties to be reduced to *Technical Advisor.*)
Board observer.
 Intelligent agent-mediated electronic marketplaces.
 Strategic alliance with Andersen Consulting. Member of CommerceNet consortium.
 Raised over \$12,000,000 in venture financing.
 San Francisco, CA
- 6/1997 **Mitsubishi Horizon Systems Laboratory**
 Designing electronic marketplaces, and economic resource allocation mechanisms for mobile agents.
 Waltham, MA
- 7/1997–7/1998 **Hewlett Packard**
 Automated negotiation, contracting, and electronic markets.
 Bristol, UK
- 2/1997 **University of Ronneby**
 Consulting on developing a market-based multiagent system for electricity distribution for Southern Sweden
 Ronneby, Sweden
- 2/1997 **Lund University**
 Consulting on developing a market-based multiagent system for electricity distribution for Southern Sweden
 Lund, Sweden
- 7/1994 **Technical Research Centre of Finland**
Laboratory for Information Processing
 Consulting on further development of the fielded EPO truck transportation optimization package
 Espoo, Finland
- 1993 **Technical Research Centre of Finland**
Laboratory for Information Processing
 Consulting on developing the EPO train transportation optimization package
 Espoo, Finland

1989–2000 **Parodent Co. (acquired in 2000)**
Voting member, Board of Directors
Helsinki, Finland

CONTRACT AND GRANT SUPPORT

Total since 5/1/97 is \$22,188,966, of which \$13,359,253 as Principal Investigator. These figures do not include the \$55,800,000 (12M + 1.8M + 6M + 12M + 12M + 9M + 3M) of venture capital raised. The dollar amounts also do not include the value of the grants of supercomputing time and advanced support.

Current academic grants

- | | |
|---------------------|---|
| 10/1/2019–9/30/2023 | RI: Medium: Learning to Search: Provable Guarantees and Applications
<i>NSF IIS-1901403</i>
Nina Balcan and Tuomas Sandholm
US\$ 1,199,995 |
| 1/31/2022–1/31/2024 | NSF Computing Innovation Fellow Postdoctoral Fellowship to do a postdoc in my laboratory (Stephen McAleer).
US\$ 255,010 |
| 9/1/2017–8/31/2022 | Algorithms in the Field: Algorithms and Mechanisms for Kidney Exchange
<i>NSF AitF</i>
Ariel Procaccia (PI), Avrim Blum (co-PI), Tuomas Sandholm (co-PI)
US\$ 799,621 |
| 2019–2021 | My PhD student Gabriele Farina received a Facebook Fellowship.
Around US\$ 200,000 |

Pending academic grants

- DoD Vannevar Bush fellowship. Sole PI: Sandholm. \$3,000,000, 2022–2027. Short proposal was selected for full proposal submission. Full proposal submitted 3/2022.
- “RI: Medium: Subgame and Certificates Solving for Multi-Step Imperfect-Information Games”. Sole PI: Sandholm. \$1,200,000, 6/1/2022–5/31/2025, NSF CISE RI.
- “Fast, Optimal AI Techniques for Game-Theoretic Team Coordination and Extensive-Form Correlation”. Sole PI: Sandholm. \$834,614, 5/2022–4/2025, ARO.

- NSF AI Institute on AI for Cybersecurity. \$20,000,000, 2022–2027. PI: VS Subramanian, Northwestern University. Prof. Sandholm is the CMU PI. CMU’s share: \$1,885,000. Prof. Sandholm’s research group’s share: \$1,140,921.

Past academic grants

4/30/2020–4/29/2021	High-Performance CPU-GPU Compute Cluster for Research on Computational Game Theory and Biological Steering <i>ARO DURIP</i> Tuomas Sandholm (PI) US\$ 485,750
9/1/2017–8/31/2020	RI: Small: New Computational Techniques and Market Designs for Kidney Exchanges and Other Barter Markets <i>NSF IIS</i> Tuomas Sandholm (PI) US\$ 420,000
3/20/2019–3/19/2020	Facebook gift to Prof. Sandholm’s CMU Electronic Marketplace Laboratory <i>Facebook</i> Tuomas Sandholm (PI) US\$ 50,000
9/2015–	Information Brokers in Multi-Agent Systems and Mechanism Design Research Program <i>ISF-NSFC</i> David Sarne and Pingzhong Tang (PIs) Provides travel funding for me and my students to collaborate on kidney exchange research. Amount TBD.
2019–2021	My PhD student (co-advised with Nina Balcan) Ellen Vitercik received an IBM Fellowship and a Fellowship in Digital Health (CMU’s Center for Machine Learning and Health). Around US\$ 176,272

- 1/16/2017–4/30/2020 **Steering T-Cell Adaptation Using Opponent Exploitation Algorithms and Computational Game Theory**
ARO
 Tuomas Sandholm (PI) and Penelope Morel
 US\$ 750,000
- 7/1/2016–6/30/2019 **RI: Small: Computational Techniques for Large Multi-Step Incomplete-Information Games**
NSF Robust Intelligence
 Tuomas Sandholm (PI)
 US\$ 450,000
- 2/2016–3/2021 **European Network for Collaboration on Kidney Exchange Programmes**
COST Action OC-2015-2
 Joris Klundert (PI)
 This is a very large grant among several European countries. I am an official foreign collaborator. Provides travel funding for me and my students to collaborate on kidney exchange work. Amount TBD.
- 2018–2019 **My PhD student Noam Brown received an Open Philanthropy AI Fellowship and a Tencent AI Lab Fellowship.**
 Around US\$ 200,000
- 7/1/2017–6/30/2018 **Supercomputing for equilibrium finding, biological steering, and kidney exchange**
NSF XSEDE, renewal of grant CCR090023
 Tuomas Sandholm (PI)
 7,024,270 Service Units (i.e., core hours) on the Bridges supercomputer CPUs, 2.6PB of storage, and 16,800 GPU Service Units.
- 2016–2019 **My PhD student (co-advised with Nina Balcan) Ellen Vitercik received the NSF Graduate Research Fellowship**
 US\$ 138,000

2016–2019	My PhD student (co-advised with Nina Balcan) Ellen Vitercik received the Microsoft Research Women’s Fellowship US\$ 17,000
1/2017	Sponsorship for the Brains vs. AI rematch <i>Carnegie Mellon University, Rivers Casino, GreatPoint Ventures, Avenue4Analytics, TNG Technology Consulting, Artificial Intelligence, Intel, and Optimized Markets, Inc.</i> Tuomas Sandholm (PI) US\$ 200,000
2016–2017	My PhD student Christian Kroer received a Facebook Fellowship US\$ 161,000
10/23/2016– 12/31/2016	Supplement to supercomputer time grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms” <i>NSF XSEDE</i> Tuomas Sandholm (PI) 6,276,000 Service Units (i.e., core hours) on the new Bridges supercomputer and 1 petabyte of storage.
1/1/2016–12/31/2016	Renewal to supercomputer time grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms” <i>NSF XSEDE</i> Tuomas Sandholm (PI) 10,000,000 Service Units (i.e., core hours) on the new Bridges supercomputer and 1.4 petabytes of storage.
9/1/2013–8/31/2016	RI: Small: Expressiveness and Automated Bundling in Mechanism Design: Principles and Computational Methodologies <i>NSF Robust Intelligence</i> Tuomas Sandholm (PI) US\$ 425,000

9/1/2015–8/31/2016	EAGER: Exploiting a myopic opponent in imperfect-information games: Toward medical applications <i>NSF Robust Intelligence</i> Tuomas Sandholm (PI) US\$ 100,000
2/5/2016–11/4/2016	Initial Computational Research on Steering T Cell Differentiation <i>Army Research Office (ARO)</i> Tuomas Sandholm (PI) US\$ 50,000
2015–2016	Optimization-Based Digital Ad Campaign Sales and Allocation <i>Adobe Digital Marketing Research Awards Program</i> Tuomas Sandholm (PI) US\$ 50,000
9/23/2015–1/5/2016	San Diego Supercomputing Center’s Director’s Discretionary Award” <i>NSF XSEDE</i> Tuomas Sandholm (PI) 1,600,000 Service Units (i.e., core hours) on Comet at the San Diego Supercomputing Center.
8/1/2015–7/29/2016	My PhD student John Dickerson won a Siebel Fellowship US\$ 80,000
6/1/2015–5/31/2016	My PhD student John Dickerson received a Facebook Fellowship US\$ 161,000
8/1/2011–7/31/2015	AIR: Sophisticated Electronic Markets for TV Advertising, Powered by Novel Optimization <i>NSF</i> Tuomas Sandholm (PI) US\$ 300,000

- 7/25/2013–7/31/2015 **Supplement for Sophisticated Electronic Markets for TV Advertising, Powered by Novel Optimization**
NSF AIR
 Tuomas Sandholm (PI)
 US\$ 50,000
- 9/1/2012–5/31/2015 **My PhD student John Dickerson received a 2012 National Defense Science and Engineering Graduate (NDSEG) Fellowship**
 US\$ 218,410
- 8/15/2015–12/31/2015 **Supplement to supercomputer time grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms”**
NSF XSEDE
 Tuomas Sandholm (PI)
 200,000 Service Units (i.e., core hours) on Comet at the San Diego Supercomputing Center.
- 1/1/2015–12/31/2015 **Renewal to supercomputer time grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms”**
NSF XSEDE
 Tuomas Sandholm (PI)
 1,043,779 Service Units (i.e., core hours), worth \$141,388, on the world’s largest shared-memory supercomputer, Blacklight (4,096 cores and 32 Terabytes of RAM).
- 4/15/2014–12/31/2014 **Supplement (i.e., addition) to supercomputer time grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms”**
NSF XSEDE
 Tuomas Sandholm (PI)
 1,000,000 Service Units (i.e., core hours) on the world’s largest shared-memory supercomputer, Blacklight (4,096 cores and 32 Terabytes of RAM). Also, 120 Terabytes of storage on the Data Supercell.

- 1/1/2014–12/31/2014 **Renewal (i.e., addition) to supercomputer time grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms”**
NSF XSEDE
 Tuomas Sandholm (PI)
 1,548,291 Service Units on the world’s largest shared-memory supercomputer, Blacklight (4,096 cores and 32 Terabytes of RAM).
- 4/2015–5/2015 **Sponsorship for the Brains Vs. AI event**
Microsoft Research
 Tuomas Sandholm (PI)
 US\$ 50,000
- 4/2015–5/2015 **Sponsorship for the Brains Vs. AI event**
Rivers Casino
 Tuomas Sandholm (PI)
 US\$ 50,000
- 4/2015–5/2015 **Sponsorship for the Brains Vs. AI event**
Artificial Intelligence journal (Elsevier)
 Tuomas Sandholm (PI)
 Euro 3,000
- 9/1/2012–8/31/2014 **Drug Design and Treatment Planning via Sequential Games**
Microsoft Computational Thinking Center at CMU
 Tuomas Sandholm (PI)
 US\$ 75,000
- 6/17/2010–5/31/2014 **RI: Medium: Abstraction, Equilibrium Finding, Safe Opponent Exploitation, and Robust Strategies for Imperfect-Information Games**
NSF
 Tuomas Sandholm (PI)
 US\$ 719,830
- 5/1/2011–4/30/2014 **ICES: Small: New and Better Markets via Automated Market Making**
NSF
 Tuomas Sandholm (PI)
 US\$ 324,340

- 5/19/2013–12/31/2013 **Supplement to supercomputer time grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms”**
NSF XSEDE
 Tuomas Sandholm (PI)
 250,000 Service Units on the world’s largest shared-memory supercomputer (4,096 cores and 32 Terabytes of RAM).
- 10/1/2011–9/30/2013 **Supercomputer time grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms”**
NSF XSEDE
 Tuomas Sandholm (PI)
 4,000,000 Service Units on the world’s largest shared-memory supercomputer (4,096 cores and 32 Terabytes of RAM).
- 10/1/2011–9/30/2013 **Supercomputer advanced support (ASTA) grant “Large-shared-memory supercomputing for game-theoretic analysis with fine-grained abstractions, and novel tree search algorithms”**
NSF XSEDE
 Tuomas Sandholm (PI)
- 7/1/2009–6/30/2012 **RI: Medium: Algorithms for Robust Barter Exchanges, with Application to Kidneys**
NSF
 Tuomas Sandholm (PI)
 US\$ 855,259
- 10/1/2011–5/30/2012 **My PhD student Abe Othman received the Google scholarship in Market Algorithms**
Google
 US\$ 75,600

4/1/2010–3/31/2011	Supercomputer time grant “Leveraging supercomputing for large-scale game-theoretic analysis: Renewal” <i>NSF XSEDE</i> Tuomas Sandholm (PI) 360,000 Service Units on a 768-core 1.5 Terabyte RAM cc-NUMA shared-memory supercomputer. Later converted to allocation on the world’s largest shared-memory supercomputer (4,096 cores and 32 Terabytes of RAM).
4/1/2010–3/31/2011	Supercomputer advanced support (ASTA) grant “Leveraging supercomputing for large-scale game-theoretic analysis: Renewal” <i>NSF XSEDE</i> Tuomas Sandholm (PI)
10/2009	CombineNet, Inc. gift to CMU Tuomas Sandholm (PI) US\$ 14,000
8/2010–8/2011	Siebel fellowship for PhD student Michael Benisch US\$ 35,000
4/1/2009–3/31/2010	Supercomputer time grant “Solving large sequential games of imperfect information” <i>NSF XSEDE</i> Tuomas Sandholm (PI) 400,000 Service Units on a 768-core 1.5 Terabyte RAM cc-NUMA shared-memory supercomputer.
9/1/2004–8/31/2009	ITR - (ECS + ASE) - (dmc + soc): Automated Mechanism Design <i>NSF ITR (Information Technology Research)</i> Tuomas Sandholm (PI) US\$ 1,100,000
9/1/2008–7/1/2009	Computational Thinking for Optimal Kidney Exchange <i>Funded by Microsoft Research, at Carnegie Mellon University PROBE (PROblem-Oriented Exploration)</i> Tuomas Sandholm (PI) US\$ 65,000

12/2008	CombineNet, Inc. gift to CMU Tuomas Sandholm (PI) US\$ 13,867
8/2008–8/2009	Siebel fellowship for PhD student Andrew Gilpin US\$ 25,000
3/2008–3/2009	‘Friendly user’ time grant on new Altix machines <i>NSF XSEDE</i> Tuomas Sandholm (PI)
10/9/2007	Machine gift from Intel Corporation Tuomas Sandholm (PI) US\$ 39,192
10/1/2007–9/30/2008	CombineNet, Inc. gift to CMU Tuomas Sandholm (PI) US\$ 13,000
5/2007	Susquehanna International Group (SIG) gift to CMU Tuomas Sandholm (PI) US\$ 25,000
5/1/2007–4/30/2008	Yahoo! fellowship for PhD student David Abraham US\$ 5,000
10/1/2006–9/30/2007	CombineNet, Inc. gift to CMU Tuomas Sandholm (PI) US\$ 12,800
9/15/2001–8/31/2006	ITR/PE+SY: Collaborative Research: Foundations of Electronic Marketplaces: Game Theory, Algorithms, and Systems <i>NSF ITR (Information Technology Research)</i> Tuomas Sandholm (PI) Co-PIs: Avrim Blum (CMU), Subhash Suri (UCSB CS), Mark Satterthwaite (Northwestern University, MEDS), Rakesh Vohra (Northwestern University, MEDS), Ming Kao (Northwestern University, CS). US\$ 2,800,000 Share of Carnegie Mellon University (lead university): \$ 1,200,338.

9/16/2003–9/15/2006 **Alfred P. Sloan Foundation Fellowship**
 Tuomas Sandholm (PI)
 US\$ 40,000

10/1/2005–9/30/2006 **CombineNet, Inc. gift to CMU**
 Tuomas Sandholm (PI)
 US\$ 12,000

9/1/2005–8/31/2006 **IBM Fellowship**
 To fund my PhD student Vincent Conitzer
 US\$ 48,815

1/1/2001–8/31/2004 **ITR/SOC: Secure Automated Negotiation under Limited Computation: Deliberation in Equilibrium**
NSF ITR (Information Technology Research)
 Tuomas Sandholm (PI)
 US\$ 388,225
 Entire amount transferred from Washington University to CMU

5/1/1998–8/31/2003 **Advanced Contract Types for Automated Negotiation**
NSF (Computation and Social Systems)
 Tuomas Sandholm (PI)
 US\$ 120,000
 Balance \$71,900 transferred from Washington University to CMU

6/1/1997–5/31/2003 **Coalition Formation among Self-Interested Computationally Limited Agents**
NSF CAREER award (Information Technology and Organizations)
 Tuomas Sandholm (PI)
 US\$ 456,098
 Balance \$177,502 transferred from Washington University to CMU

7/15/1997–9/30/2000 **Optimal Mechanisms for Negotiation under Message Passing and Belief Revision**
NSF (Information Technology and Organizations)
 Tuomas Sandholm (PI), Ronald Loui
 US\$ 199,052

- 5/1/1997–4/30/2000 **High Performance Distributed Object Environment with Emphasis on Adaptive End-to-end QoS Guarantees**
DARPA (Quorum program)
 Guru Parulkar (PI), Douglas Schmidt, Tuomas Sandholm, Jonathan Turner
 US\$ 650,000
- 8/1/1992–12/31/1992 **Neural Networks in Bankruptcy Prediction**
Technical Research Centre of Finland
Laboratory for Information Processing
 Grantor: Remote Area Development Fund
 Tuomas Sandholm (PI)
 Funding approved but project never initiated (PI went to graduate school)
 100,000 Finnish marks
- 1/31/1992–12/31/1992 **Intelligent Agents (INTELAGENT)**
Technical Research Centre of Finland
Laboratory for Information Processing
 Seppo Linnainmaa (PI), Tuomas Sandholm, Aarno Lehtola.
 500,000 Finnish marks

Industrial grants received

- 1/1/2014–6/30/2014 **SBIR Phase I: Advertising Sales and Traffic Optimization: Difficult Customer-Requested Optimization Constraints and Scalability on Real Data**
NSF SBIR
 Tuomas Sandholm (PI). I later transferred the official PI-ship to my PhD student John Dickerson due to SBIR full-time regulations.
 US\$ 150,000
- 8/1/2011–7/31/2013 **Matching funds for the NSF Accelerating Innovation Research grant**
Innovation Works and CMU
 Tuomas Sandholm (PI).
 US\$ 300,000

- 6/2002–6/2005 **Scalable and Usable Technology for Markets with Ex-
pressive
Bidding**
*NIST, US Department of Commerce Advanced Technology
Program (ATP)*
Tuomas Sandholm (PI). Awarded to CombineNet, Inc.
US\$ 1,836,530
- 11/1/1997–10/31/2000 **An open component-based architecture for Internet
commerce**
*NIST, US Department of Commerce Advanced Technology
Program (ATP)*
Awarded to BusinessBots, Inc., CommerceNet, CNGroup,
and Tesseract Information Systems
US\$ 5,000,000



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Acknowledgements

During my brief tenure at MIT (brief, at least, by geologic standards) many people have contributed to making it an intellectually and personally rewarding experience. Foremost has been my advisor Randy Davis who, by word and deed, taught me how to do research critically and express the results intelligibly. He was always available to comment on my ideas and writings, invariably giving sound advice (even if it was not always heeded).

Members of the hardware-troubleshooting research group — Walter Hamscher, Brian Williams, Mark Shirley, and Jeff Van Baalen, in particular — have provided much intellectual stimulation and friendship. It is a privilege to have been associated with them over the years. My committee members, Chuck Rich and Peter Szolovits, supplied crucial insights into what was important and interesting about the research. I have also benefited from discussions with Phil Agre and David Chapman.

I am grateful to Schlumberger for their support, both financially and intellectually, during the course of my research. In particular, I have benefited much from interactions with Reid Smith, Marty Tenenbaum, John Mohammed, and Roy Nurmi, who taught me to do geologic interpretation. Many others outside the MIT community have had an impact on my work, including Bruce Buchanan, Drew McDermott, Tom Dean, Yoav Shoham, Kris Hammond and Ken Forbus. To these and many others, my heartfelt thanks.

Most importantly, I thank my dear wife Pearl, who is a continual source of love, friendship and amusement. She has been a source of strength and comfort when I needed it the most. I eagerly anticipate embarking on this new phase of my life with her.

Welcome!



MANUELA M. VELOSO

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[Carnegie Mellon University](#)
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(To visit me, I will schedule one of our [CoBot](#)
[robots](#)
to escort you to my office.)

Some news/talks:

- [Interview: What's the Role of Multiagent Systems in Finance," ML Minutes](#), (October 2020)
- [Interview: Humanity and AI will be Inseparable, The Verge](#)", (November 15, 2016)
- [Lecture at the MIT Technology Review EmTech Digital](#)", (May 23, 2016)
- [Keynote at the 2015 Grace Hopper Conference](#)", (October 15, 2015)
- [Lecture at the "Admiravel Mundo Novo"](#), in Portuguese, (June 12, 2015)
- [CBS Saturday Morning](#), (February 21, 2015, with Anthony Mason, and producer Gregory Mirman)
- [MIT Technology Review article](#). (November 11, 2014, by Will Knight)
- [Wired article](#). (August 6, 2012, by Christina Bonnington)

[Short vitae](#)

Herb Simon's talk on "Forecasting the Future or Shaping it?" [video](#) and [paper](#) (CMU, October 2000), and [clip on robot soccer](#) (which I presented in my Presidential Address at AAAI'14, July 30, 2014).

RESEARCH:

- [LIST OF PUBLICATIONS](#).
- Also please see below the PhD theses of my students.
- [CORAL](#) - My research group on intelligent robots that Cooperate, Observe, Reason, Act, and Learn.
- **Our CMDragons team is the 2015 RoboCup Small Size World Champion! See the [news](#) and the [video highlights](#) of ALL the games (6-0, 10-0, 10-0, 15-0, 2-0, 5-0).**

CoBots - Collaborative Mobile Robots:

- [Learn more. Watch CoBot videos. See the publications.](#)
- We research on effective autonomous indoor mobile service robots. We aim at contributing to a multi-robot, multi-human symbiotic relationship, in which robots and humans coordinate and